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OUISIANA CONSERVATION REVIEW

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WINTER, 1938-39

The Alchemy of Time

The earth was a fiery ball of gaseous materials, enveloped in a huge mass of vapor and held in its orbit by the gravitational pull of its supposed parent, the sun. A dazzling fire-fly in the blue bowl of the heavens.

This whirling mass began to condense and cool, possibly 2,500,000,000 years ago. Far-flung vapors gradually closed in around their nucleus, cooling from vapors to liquids, then to solids.

Never at rest, the hard crust of the earth's surface reacted in waves to the gradual adjustments made necessary by the unequal cooling of interior fluid masses, occasionally breaking under the strain and pushing up into huge mountain ranges or cracking in spots to emit great flows of molten rock. In their turn the mountains yield to Nature's erosive forces and are washed down in rivers to the sea.

That sector of the earth's surface which we now call Louisiana was submerged time and again beneath the ancient seas, to be built anew by river-borne sediments drawn from the upper reaches of the continent and laid down in the shallow coastal waters.

Microscopic forms of animal and plant life, deposited with these sediments, were transmuted by the alchemy of Time into the liquid "black gold" known as petroleum. The upheaval and projection of our salt domes through the tremendous thickness of marine sediment created traps and reservoirs for this petroleum.

Man's life is but a brief moment in the infinite Time of the earth; and it is a tribute to his genius that he is now able to locate this hidden "gold", cached by Nature in her inexorable processes millions of years ago.

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LOUISIANA STEPS AHEAD WITH SCIENCE

Louisiana continued the conservation and development of her natural resources throughout the year 1938, which was notable for a number of distinctive achievements associated with the work of this Department.

Acquisition of Tchefuncte Park in St. Tammany Parish not only insures the preservation of the natural beauty and wildlife of this area, but provides the Department with a proving ground for biological experiments and field research which will be rapidly expanded in the next few years.

The importance of research in the solution of some of our most aggravating ills, in finding new uses for our natural resources and their by-products, has been emphasized by this administration. Construction of a new building on the grounds of Louisiana State University, to house our Geological Survey and Research Division, will provide the laboratory space and equipment for our expanding activities in this direction. We now have the nucleus of our research personnel, being so fortunate as to acquire the service of several brilliant workers whose investigations will give us a better knowledge with which to chart our future course.

ACCELERATED ACTIVITY OF THE PETROLEUM INDUSTRY

Louisiana is becoming more and more oil-conscious and the continued expansion of the industry in this State is a source of gratification to our Department. The development has been most apparent in South Louisiana, where over twenty new oil fields were located during the past year, as compared with eleven in 1937.

While the production figures for 1938 do not reflect this exploratory effort and increase in the number of new fields, it must be borne in mind that the business 'recession' extended throughout the greater part of the year and that production was restricted by the indices and trends of market demand. This was of course the basis of our proration or "allowable" orders for the producing fields.

By
William G. Rankin
Commissioner of Conservation

It should be mentioned, however, that there is every indication of a continued improvement in the market for oil, noted in the closing months of 1938.

LOUISIANA'S LARGEST RIG

■ Equipment of the Vendome Petroleum Corp.—H. W. Robinson et als. Located 327.4 feet west of east line of the Kenilworth plantation and 1100 feet north of center line of Bayou Terre aux Boeufs. Section 59, T. 13S., R. 14E., St. Bernard Parish.

■ 1. Plank roadway to drilling rig—136 ft. steel derrick, 30 feet square at base.

■ 2. Close-up of derrick, showing steel sub-structure.

■ 3. Lucy-Wheeling mud pumps 15½" x 8" x 20".

■ 4. Shale shaker.

■ 5. Cameron hydraulic blow-out preventers, 6,000 lb. test.

■ 6. Four 125 H. P. boilers, burning fuel oil—equipped with automatic fuel and water control and water fire-heater.

At the convention of the American Petroleum Institute in Chicago the forecast was made that gasoline consumption in 1939 would be around 4 per cent greater than in 1938, that furnace oil consumption would be 15 per cent greater this winter than last.

Business barometers indicate a steady improvement in general conditions. Steel mill operations are up, freight car loadings are relatively high. Automobile manufacturers expect to produce and sell at least 40 per cent more vehicles in 1939 than in 1938. Construction activity is also encouraging and serves to stimulate other lines of industry.

SCIENCE TURNS TO SOUTH LOUISIANA

The United States has produced about 21,000,000,000 barrels of oil since 1860. The present national reserve is estimated at about 15,000,000,000 bar-

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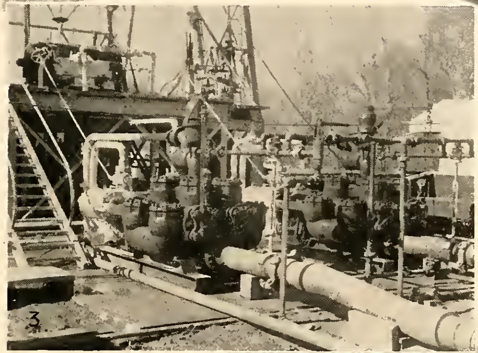
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rels. The cost of finding this 35,000,000,000 barrels can only be estimated at best. At 20 cents per barrel the discovery cost would be $7,000,000,000, but one economist estimates that at least $10,000,000,000 have been expended in exploratory effort.

It is significant that in the coastal region of Louisiana, where the cost of drilling exceeds that of most other oil districts, science has stepped up the methods of exploration and reduced the percentage of dry holes.

Taking the reports of our geologists the oil companies have made an intensive study of the oil possibilities of Louisiana, as many as sixty seismograph crews being reported in the field. It is generally conceded that the petroleum reserve per square mile of Louisiana exceeds that of other areas of the same size, that the surface of this potential supply has barely been scratched.

The Louisiana Gulf Coast leads all major producing areas in its high percentage of discoveries, about one wildcat well in four having opened a new field in recent years. This compares with 75 to 99 per cent of dry wildcat wells in other oil districts.

Twenty years ago there was hardly one wildcat in 200 successful, but now the discovery rate for the United States is much lower; on the whole about one wildcat in fifty opens a new field.

It is in South Louisiana that science has really been put to the test, in field and laboratory, to reduce the number of dry holes by a more scientific program of exploration. The result has been most apparent during the past year, with an increase of 100 per cent in discoveries for this district.

Taking the picture as a whole, prospects for 1939 are brighter than they have been for the past several years. Surely there was no stint in the bounty of Nature when she was building the State of Louisiana—as we become more familiar with our natural resources we are impressed with the responsibility that devolves on us to see that they are not over-exploited and dissipated, but wisely administered and developed.

* * *

Deer have different beds for different winds. They often make a bed on the edge of a woods so that they can look out across an open space. With the wind blowing across the open space towards them they depend upon their scent to warn them of anything approaching from that direction, while their keen ears will tell them of anything coming through the woods behind them.

Healthy Streams

By

Charles L. Davis, Jr.*

The condition of the water courses and streams of Louisiana and the fact that they should be kept healthy is of vital importance not only to those interested in the conservation of our national resources but also to the industries operating in the State. Especially should it be of interest to the pulp and paper industry, for the streams on which they are situated are necessary outlets for their waste fluid.

The pulp and paper industry has been gathering tremendous momentum in the South in the past few years, for here nature has solved the problem of abundant and accessible raw materials. The people of the South recognize that these mills are an integral part of the community and realize there is a dire need for more efficient cooperation between the industry and the state conservation agencies to combat the ever-growing problem of stream pollution.

The Industrial Research Laboratory of the Department of Conservation, for the past year, has conducted studies and experimental work on possible treatments of paper mill waste let loose in our streams, and has classified the literature on disposal of such waste. On the completion of the new laboratory now under construction, no better facilities will be available in this section for carrying out experimental work of this nature. Having no direct connection with any mill, their interest is for the common good of all. Also, through the Bureau of Research and Statistics it is possible to make a study of available markets to determine any possible outlets for products which might be derived from the treated paper mill waste.

Because Louisiana has this laboratory and its many facilities readily available, we believe it would be to the advantage of the manufacturers to work with the Department of Conservation, through its Industrial Research Laboratory, as a cooperative group. Such a group would be available to assist in collecting data on current operations, and to form an Advisory Board to meet on call for the discussion of the problems of mill operation, and to help outline future programs of study. Appointing one member of each technical staff to act on this Board would be a logical step as the problems would be mainly of a technical nature, involving the economics of the mills themselves. The main consideration of this Board should be the economic possibilities of any suggested treatments, for, if a proper balance between cost and effectiveness is reached and maintained, stream pollution can be eradicated without interfering with the profits of the paper mills. In fact, working together and sharing alike the benefits derived from these investigations, a considerable saving in effort and money could be enjoyed by all. In such an organization as this stands our only hope of making rapid progress, for, working as individuals, results will be slow in forthcoming even though one or more persons might make an outstanding contribution to the final solution.

Taking stock of the situation as it now exists will give an idea of the magnitude of the undertaking before us. Chemical recovery, as practiced at present by the sulphate mills, consists essentially in evaporating the black liquor, partially burning out the organic matter contained in the thick, viscous residue, adding sodium sulphate, melting the mixture in a reducing atmosphere to transform the sulphate to sulphide, and melting out the sulphide and the carbonate of soda, and finally causticizing these compounds in a water solution to a mixture of sulphide and caustic. This mixture, together with chemicals added to replace losses, is used as the cooking liquor back in the beginning of the process. Some of the black waste liquor is lost in the final washing of the pulp. In good practice, this should not exceed 10% to 15% of the total liquor. The lime sludge is reclaimed by burning and recausticizing.

It will be noted that the weak point in conserving chemicals and incidently in the prevention of stream pollution is in the washing of the pulp. For this reason, a complete white water survey should be made of each mill with standardized methods of measurements of flows, sampling and analysis of waste white water. Accurate records will show the existing losses and the extent to which expenditure for recovery would be economically feasible. Fresh water consumption should be reduced to a mini-

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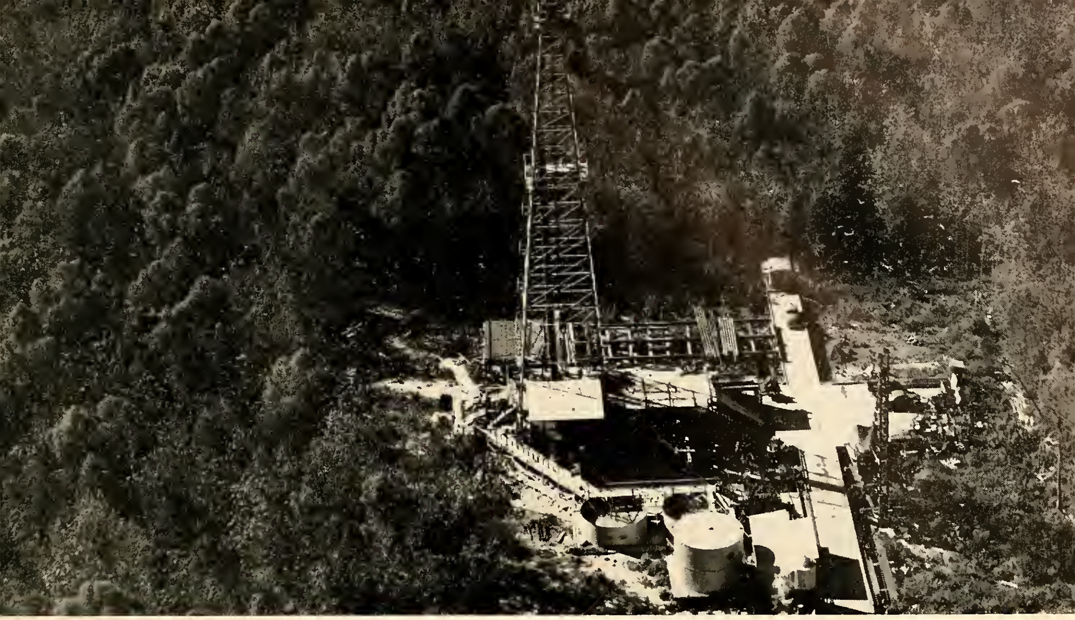
*Department of Conservation Chemist.



■ **Sun Oil Co. operations, Dibert, Stark & Brown, Chacahoula field, Lafourche Parish, Louisiana**

Oil Development In Louisiana During 1938

By
Donald Goodwill, Jr. *

During 1938 the oil development of Louisiana was of such importance and significance as to focus the attention of the entire industry on this State. This was especially true of the Gulf coastal area, where the difficulties of exploration and drilling have tested the enterprise and skill of both majors and independents.

South Louisiana's production averaged around 184,000 barrels daily for the year and more definitely established this area as one of the major districts from which to expect greater production in the future.

From the tables shown on page 10 listing the new fields discovered, the reader will note that eighteen of these were in South Louisiana and practically all in the area commonly referred to as the Coastal Salt Dome Section. There were many other prospects in this Salt Dome Section, in which oil or gas shows were encountered in wells which have recently been drilled. These prospects should receive intensive developments during the coming year. Some of these are the Texas Company's State-Coon Point prospect in lower Terrebonne Parish; The Texas Company's Henderson prospect in St. Martin Parish, in which their St. Martin Land Company well No. 12 showed quite a bit of oil and gave promise of a new producing area for early 1939. Then the Shell Petroleum Corporation's Godchaux Sugars well No. 1, in the La Place Area, St. John the Baptist Parish, even though abandoned as a dry hole, had good enough indications to probably warrant another well on this prospect.

It has been very interesting to watch the development of the flank production on the Old Evangeline (Jennings) Field. This field was discovered in 1901 and up to the year 1937 it had produced in excess of 50,000,000 barrels of oil, most of which was produced from the shallow sands on top of the dome or from the cap rock. Even though production had been established on the flanks of this dome, little development took place until this year; however, as the year grew on and development continued this field resulted in being the leading producer in the Louisiana Coast. This activity has acted somewhat as a stimulus to a number of operators in searching for flank production on other old known and even unproven areas. Examples of this type are: The Superior Oil Company brought in a producer on the west side of the Old Hackberry Field in Cameron Parish; and the Union Sulphur Company completed a large producer in their Doiron No. 1 at East Hackberry, Cameron Parish. Another important discovery was made by the Sun Oil Company on the Old Chacahoula Dome in northwestern Lafourche Parish; which the Sun Oil Company established as a field when they completed their Dibert, Stark & Brown well No. 1 for a 720 barrel well in September. (Previous to this discovery well there had been thirty seven (37) tests drilled by four different operators during the past ten or twelve years). The Texas

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* Petroleum Engineer, Department of Conservation.

Company was successful in their venture with their well, Jefferson Island Salt Mining Company's No. 1 at Lake Peignour, Iberia Parish, in which they established commercial production after the many attempts by the Jefferson Lake Oil Company to open up a field. The Humble Oil & Refining Company continued their efforts to bring in flank production on the Old Bayou Blue Dome, Iberville Parish; also as the year closed this same Company was dredging canal and preparing to drill a well on the flank of the Bayou De Glaise Dome, also in Iberville Parish, which has laid dormant for some years. It is certainly likely to expect such known prospects as the Old Napoleonville Dome, Assumption Parish; Avery Island, Iberia Parish; Bayou Bouillon, St. Martin Parish; also Belle Isle, St. Mary Parish to be drilled during the coming year.

When speaking of oil, one naturally has to think of gas, since the two are formed from the same hydrocarbons beneath the earth's surface. The added gas reserves brought into existence during this year in Southern Louisiana have been tremendous. Some have been established in the Southwestern Section; however, the ones I refer to mainly, are those in the Terrebonne Basin. These producing areas are known as Lirette, Lake Long, Delarge, South Houma, and Bay Baptiste or South Lirette. Lirette and Lake Long were proven in 1937. Although further development has taken place this year, up to the present, the wells at Lirette are classified as gas-distillate wells, as those in the Delarge and Bay Baptiste Areas, details of which may be found in table on page 54. It is of major interest to know that the Fohs Oil Company's Buckley-Bourg well No. 1, discovery well at Delarge Field, is the deepest commercial producer in the World, being from 13,254'. Not only do we have these gas-distillate fields to furnish gas, but also the Oil Fields known as South Houma, Lake Long and Convent (the latter being outside but within close proximity to Terrebonne Basin) can furnish vast amounts of gas.

At the present there are negotiations being carried on for gas lines to be built from these gas reserves to supply the towns of Houma, Thibodaux, Morgan City, Napoleonville, Raceland and many others in their vicinity; also a number of refineries, sugar mills, and other industrial plants. At this time, the only commercial use of the gas produced from Southeast Louisiana is at the Lafitte Oil Field in Jefferson Parish. Here the Texas Company, the sole producer, operates a gasoline plant and pipes the residue gas to the Freeport Sulphur Company's operations at Lake Washington, some 22 miles distant, where it is used for fuel purposes. Our main gas reserves in Southwest Louisiana such as: Iowa, English Bayou, Gillis and Tepetate, have gasoline plants to extract the gasoline content from the wet gas, after which the gas is utilized either for plant operation or placed in lines and consumed commercially.

As we leave the Gulf Coastal Parishes of Louisiana we get into a section that has had development of major importance. This section, from Southern Beauregard Parish northward to the Northern extremity of Vernon Parish and extending eastward across the Mississippi River, taking in the Florida Parishes, has been known to the Geologist as the "Conroe Trend." The term "Conroe Trend" is an ambiguous word, originating after the discovery of the Conroe Oil Field in Montgomery County, Texas, by a news reporter. But, if the term could be defined for Louisiana we would say it is that area or portion of the Coastal Plain of Louisiana, in which the Cockfield formation is anticipated in its normal position between 6000' and 7000'. Nevertheless, the Continental Oil Company in 1937 established Sparta sand production in their field at Ville Platte, which was the first Sparta sand production ever to be discovered in this State. Although during the year this field was extensively developed by the Continental, Texas and Amerada Companies, as the year closed, the entire productive area had not been defined. Another field of importance in this trend is the Bancroft Area, Beauregard Parish, which is producing from the Cockfield formation. This is the same productive formation as in the Cheneyville Field in the Southeastern portion of Rapides Parish. The Amerada and the Texas have made efforts to establish Sparta production in this latter field during the past ten months; however so far have been unsuccessful. No doubt, their efforts will be continued during the coming year.

EXPLORATION IN SOUTH LOUISIANA

- ■ **1. Laying out the day's work by means of plane table and alidade.**
- ■ **2. Seismograph operator taking a record.**
- ■ **3. Means of transportation in very shallow pond.**
- ■ **4. Pulling steel casing from shot hole after dynamite has been detonated.**
- ■ **5. Transportation in Atchafalaya bottoms.**
- ■ **6. Transportation in coastal area.**
- ■ **7. Digging shot holes with portable drill.**
- ■ **8. Firing a shallow dynamite charge.**

(Photos courtesy Independent Exploration Co.)

Due to the year's developments in the so-called Conroe Trend area, many thousand acres of leases have been taken by numerous companies and individuals. This was a revival of a major leasing campaign which took place about six years ago when a few of the major oil companies leased a great many acres in the same area.

As the year closed a wildcat well known as the Sid Richardson No. 1, Haas Investment Co., located on the Eola prospect, Section 7, T 8S, R 3E, Avoyelles Parish, continued to hold interest as additional showings were cored. This well is drilling below 7500'.* If a commercial producer is made in this well no doubt there will be much more wildcatting along this trend.

Going eastward from these Parishes just mentioned, we get into the Florida Parishes. At the beginning of 1938 the oil fraternity expected this section to be quite active and we think perhaps one thing which retarded development more than anything else was the failure of the Bachelor Oil Company's No. 1-Hackney Lbr. Co., test, Sec. 28, T 3S, R 8E, to produce. It was abandoned at 9990', in Cane River, in May, 1938. The Cockfield sand carried salt water. This well penetrated all possible producing horizons of this Section without finding commercial production, however, the well is of tremendous interest from a geological standpoint, and too, one could not say the information found was not somewhat encouraging. Even the failure of this well did not cause operators to lose interest in the Parish, as was shown by the amount of geophysical work the Humble, Amerada, Gulf and Stanolind carried on and as a result instead of these companies releasing, they added to the acreage already acquired. Several of the major companies have done considerable geophysical work in the territory east of this Parish, taking in the Parishes of East and West Feliciana, East Baton Rouge, Livingston, Tangipahoa, some in St. Helena, and southern St. Tammany.

Let us now discuss the northern portion of the State, which has been for many years an important producer of crude oil in the Mid-Continent Area.

At the start of the year the operators were confronted with a problem of vital importance in that only a few months prior to this time oil had been discovered in two deep horizons; one being the Travis Peak formation, and the other the Cotton Valley formation on the Old Cotton Valley structure, in Webster Parish,

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*This well was completed as a large oil producer from the Wilcox Formation at a depth of 8548 feet. This is the first commercial production from the Wilcox and this find is one of the most important discoveries in Louisiana to date.

[Continued on Page 54.]

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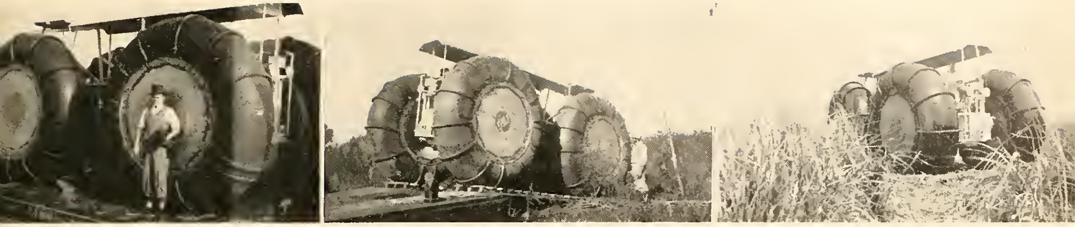
OIL DISCOVERIES SOUTH LOUISIANA–1938.

Field	Parish	Month of Discovery	Average Pay Depth	Average Pay Thickness	Sand or Lime	Type of Discovery	Estimated Proven Acres	Estimated Oil Reserves Barrels	Discovery Well	Initial Production Barrels	Owners
1. Bancroft	Beauregard	May	7,350′	20′	Sand	New	160	2,000,000	Republic Prod. Co. Lutcher Moore Co. #1 Sec. 10 T6S R13W.	38 Distillate ¼″ Ch. 2,000 # pressure 800 M.C.F.	Republic Prod. Co. Houston Oil Co. Gulf Refining Co.
2. Baton Rouge	East Baton Rouge	Mar.	6,475′	50′	Sand	New	40	1,900,000	La. Crusader Oil Co.-Duplantier #1 Sec. 65 T7S R1W.	465-3/16″ Ch. 950 # pressure	La Crusader Oil Co. Superior Oil Co. Wm. Helis Geo. Helis
3. Bay Baptiste	Terrebonne	Aug.	11,175′	30′	Sand	New	20	400,000	Fohs Oil Company-State Bay Baptiste #1 Sec. 41 T19S R19E.	85-10/64 "Ch. Distillate 4,000 # pressure 2,500 M.C.F.	Fohs Oil Company
4. Chacahoula	Lafourche	Sept.	7,247′	15′	Sand	Old Dome Flank	40	500,000	Sun Oil Co.-Dibert Stark, & Brown #2. Sec. 70 T15S R15E.	720-¼″ Ch. 950 # pressure	Sun Oil Company
5. Chalkley	Cameron	Nov.	8,555′	20′	Sand	New	20	250,000	Humble Oil Co.-K. B. Hanszen #2. Sec. 9 T12S R6W.	20 Distillate. 5/32″ Ch. 1,500 M.C.F. gas 3,200 # pressure	Humble Oil & Refg. Co.
6. Convent	St. James	July	6,350′	50′	Sand & Shale	Salt Proven	20	500,000	Continental Oil Co. Realty Opts. #1. Sec. 17 T12S R5E.	70¼″ Ch. Distillate 2,450 # pressure. 3,400 M.C.F.	Continental Oil Co. Shell Petroleum Corp.
7. Creole	Cameron	Mar.	5,150′	70′	Sand	New	40	1,750,000	Superior & Pure Oil Co.-State, Gulf of Mexico #1. Sec. 4 T15S R8W.	243-14/64″ Ch. 350 # pressure	Superior Oil Co. Pure Oil Co.
8. Delarge	Terrebonne	June	13,250′	75′	Sand	New	20	600,000	Fohs Oil Co.-Buckley Bourg #1. Sec. 77 T19S R17E.	100-12/64″ Ch. Distillate. 4,300 # pressure 3,500 M.C.F.	Fohs Oil Company
9. Golden Meadows	Lafourche	Dec.	8,510′	20′	Sand	New	20	420,000	Texas Co.-La. Terr. Land Co. #1. Sec. 77 T19S R21E.	195-3/16″ Ch. 2,500 # pressure. 1,895 M.C.F.	The Texas Company
10. Grand Bay	Plaquemines	July	6,140′	20′	Sand	New	160	2,000,000	Gulf Refg. Co.-Grand Prairie Levee Dist. #1. Sec. 6 T20S R19E.	504-3/8″ Ch. 255 # pressure	Gulf Refining Co.
11. Jefferson Island	Iberia	June	8,175′	40′	Sand	Old Dome Flank	40	900,000	Texas Co.-Jeff. Is. Salt Mining Co. #1. Sec. 58 T12S R5E.	346-10/64″ Ch. 1,575 # pressure.	The Texas Company Jefferson Lake Oil Co. Sunray Oil Company
12. Lake Verrett	St. Martin	Dec.	8,020′	15′	Sand	New	20	250,000	Shell Pet. Corp.-Burdin #1. Sec. 15 T14S R12E.	302-14/64″ Ch. 750 # pressure.	Shell Pet. Corp. Tide Water Ass. Oil Co. Cities Service Oil Co.
13. North Tepetate	Acadia	Oct.	7,950′	25′	Sand	New	20	350,000	Atlantic Oil Co.-Klumpp #1. Sec. 12 T7S R2W.	75¼″ Ch. 3,000 # pressure. 3,000 M.C.F.	Atlantic Oil Co. Continental Oil Co. Humble Oil & Refg. Co.
14. Raceland	Lafourche	Jan.	7,195′ & 10,215′	55′	Sand	New	100	3,500,000	Amerada Pet. Corp.-So. Coast #1. Sec. 34, T15S R19E.	753-¼″ Ch. 1,500 # pressure.	Amerada Pet. Corp. Tide Water Ass. Oil Co.
15. South Houma	Terrebonne	Nov.	10,305′	50′	Sand	New	20	600,000	Shell Pet. Corp.-La. Terr. Land Co. (Peters) #1. Sec. 73 T18S R18E.	198-12/64″Ch. 3,400 # pressure.	Shell Petroleum Corp.
16. Timbaliar Bay	Lafourche	Jan.	6,960′	60′	Sand & Shale	New	20	750,000	Gulf Refg. Co.-State #3 "P.P." Timbaliar Bay Sec. 36 T23S R21E.	350-3/16″ Ch. 800 # pressure.	Gulf Refining Co.
17. West Gueydan	Vermillion	July	7,145′	10′	Sand	New	20	200,000	J. B. Ferguson #2 Magnolia Pet. Co. 1- Sec. 5 T12S R2W.	366.40-¼″ Ch. 2,200 # pressure.	Magnolia Pet. Co. Pure Oil Company Stanolind Oil & Gas Co.
18. Woodlawn	Jefferson Davis	Feb.	8,280′	30′	Sand	New	100	2,500,000	Union Sulphur Co.-Calcasieu Bk. #1. Sec. 12 T9S R6W.	60 Distillate 12/64 Ch. 1,900 M.C.F. 3,000 # pressure.	Union Sulphur Co.

OIL DISCOVERIES NORTH LOUISIANA–1938.

Cotton Valley	Webster	July	8600′	40′	Sand	Old field Flank	*16,000	†8,000,000	Stanolind Oil & Gas Pardee #1 Sec. 36 T21N R 10W	1700 Bbls. 3/8″ Ch. 1200 # Pressure	Woodley Pet. Co. Magnolia Pet. Co. Stanolind Oil & Gas Oliphant Oil Co. Hunt Oil Co. Ohio Oil Co.
Shongaloo	Webster	May	8990′	25′	Sand	Old field Flank	*15,000	60,000,000	Magnolia Pet. Co. Sexton #1 Sec. 32, T23N R 9W	279 Bbls. 5/16″ Ch. 2,708 MCF Gas 2700 # Pressure	Magnolia Pet. Co. United Gas Co. Ohio Oil Co. et al
Shreveport	Caddo	July	5540′	20′	Lime	New	*1,920	7,380,000	Allison Drg. Co. Ellerbe #1 Sec. 27, T18N R 14W	502.5 Bbls. ½″ Ch. 975 # Pressure	Allison Drlg. Co. Hurricane Oil Co. Harry Fotiades R. L. Bauman

* Ultimate, estimated proven acreage.
† Sands in Cotton Valley Formation.



The Irrepressible Marsh Buggy

Since the beginning of extensive oil production in the coastal area of South Louisiana, many enterprising oil concerns have been attracted to these rich, oil-bearing marshlands by the success of pioneers who introduced the commercial production of high grade oil from deep drilling operations. Here they encountered new and difficult operation and transportation problems found in no other section of the country.

It would seem strange that there are fewer dry holes completed in South Louisiana than in other oil bearing areas. The reason is easily explained. As every oil man knows, deep drilling is an expensive proposition. Especially is this true along the Louisiana Gulf coast where most every drilling test is either a marine or a semi-marine operation. Access to the former being by boat, and to the latter by the building of walks and canals and roads, varied types of transportation are employed. With such conditions prevalent, even the wealthiest oil operator cannot afford to go about drilling in search of oil in a haphazard manner, and so we find the oil prospectors spending more and more time in the preparatory work, such as geophysical and geological surveys, seismograph tests, soil analyses, etc. The necessity for thoroughness in exploring and operating in the coastal region of Louisiana has caused the introduction of new instruments, machinery and transportation.

One of the unique transporting vehicles now used in the marshlands, a machine constructed especially to conquer the difficult terrain conditions of this soggy coastal area, is the Marsh Buggy developed by the Gulf Refining Co.

The Marsh Buggy was introduced some time ago when the Gulf Company began more extensive development in South Louisiana. At that time members of the Company's geophysical crews expressed a decided need for some means of transportation, heretofore unknown, a machine that would take in its stride water and land, and even more important, be able to traverse the extensive marshes of this area. The problem was accordingly turned over to the Company's Research Laboratory in Harmarville, Pennsylvania, which is headed by Mr. A. A. Lane. Within a short time, though only after considerable study and experimentation, Mr. Lane and his staff of engineers produced a solution to the problem in the form of the Marsh Buggy, which, after initial testing here in this State proved so successful that it was later duplicated by another of the same type.

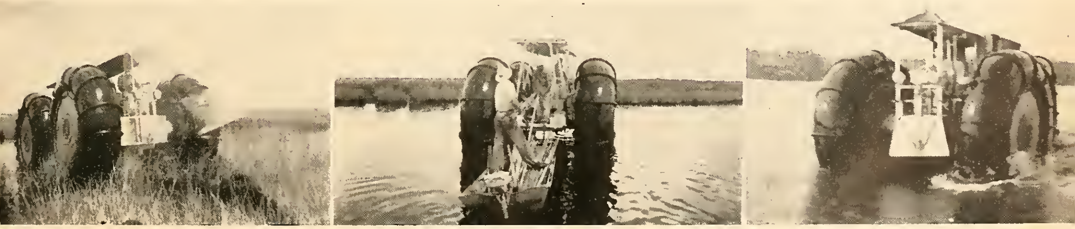
RESEARCH MEETS TEST

The Marsh Buggy is an 8,000-pound machine combining features of the automobile, truck and tractor. Motive power is furnished by a Ford 85 horse-power motor, the chassis is that of a large Cadillac, and the huge specially constructed Goodyear tires are propelled by a combination Ford truck and Farnwell tractor transmission—offering ratios as high as 300 to 1, a double reverse. Its principal use is the carrying of half a dozen men and their instruments to locations in the marshes which are inaccessible by boat or truck.

The large tires, which strangely enough carry but four pounds of air, float the Buggy in water, and the smaller inflated strips, which run cross-wise over the wheels and which are attached not unlike automobile tire chains, furnish traction on both water and land, acting as paddle wheels when the machine is afloat. The wheels are of stainless steel, because of the non-rusting quality of this metal, and the remainder of the body in most parts is of aluminum, for lightness.

The Marsh Buggy's accomplishments are many. It does its job well, and in a better manner than could ever have been hoped for. Its operators are proud of the fact that it was more or less directly responsible for discovery of the Gulf's Grand Prairie dome, which is located deep in the marshes of Plaquemines Parish, in an area almost unapproachable by any other mode of transportation.

—H. R. S.



■ **Thick stand of natural second growth Loblolly pine in Louisiana 71 feet tall, 31 years old, marked for experimental thinning.**

Lumbermen and Nature to Improve Quality of Second Growth Timber

By B. M. Lufburrow,

Forester, Southern Pine Association

Louisiana yellow pine has contributed much to the development of the state and its citizens. Louisiana yellow pine lumber for many years has been well and most favorably known in international as well as national trade circles. In many states of the Union and in nearly all civilized countries of the globe, Louisiana yellow pine may be found in homes, factories, railroads, highways, ships, office buildings, on farms and in agricultural implements and numerous other industrial products.

And considering the remarkable progress made in the last two decades by timberland owners, aided by the state's efficient forestry department, in the reproduction and conservation of timber, there remains no doubt that Louisiana for generation after generation in the future will continue to supply lumber and other forest products to meet the needs of consumers in this country and many foreign lands.

A large portion of the virgin forests of a century ago in the state have been replaced today by sturdy second-growth timber and the lumbermen and other forest land owners are taking measures and practicing methods that assure a continuous supply of timber and a permanent lumber industry in Louisiana. Furthermore, the lumbermen are rapidly learning how to assist Nature in growing better trees to fashion into material for mankind's uses, and the lumber produced from second-growth timber, according to the judgment of those who have given careful study and attention to the subject, will be of just as good, and probably better quality as ever was produced from the widespread virgin forests of many years ago.

When the lumber industry of Louisiana was in its infancy, sustained yield operations, careful cutting practices and methods for conserving and reproducing the forest resources were little known or advocated. In those days there was need for more farming and grazing lands, and clearing of forested lands for agricultural and other purposes was considered essential to the state's development. The public had ideas for use of the lands other than merely for growing crops of trees. Heavy investments by the lumbermen in sawmills, logging railroads and equipment and timberlands, forced production to meet costs of lumber operations and the demand for Southern pine lumber, not only within the state, but also from other sections of the country. Naturally the "inexhaustible" timber supply diminished and gradually the public began to realize that a large portion of the cleared lands were not needed for farms and pastures, but were best suited to growing trees.

In the early days of lumbering in Louisiana forest fires burned uncontrolled and without efforts at control. Many of them were purposely set for one reason or another. So the first step of Louisiana lumbermen, who had visions of perpetual operations, was to control the ravaging forest fires. This required men, money, towers, telephone lines, fire-breaks, fire-fighting equipment, and a vast amount of educational work among the lumbermen's employees as well as among the neighbors and general public.

After some twenty or more years of hard efforts on the part of Louisiana lumbermen and conservation advocates, there now are 2,041,000 acres of forest lands in the state contributing two-cents per acre to the state's organized fire control work, covering more than seven million acres of contributing and non-contributing forest lands. The Louisiana Conservation Department now has appropriations of $350,000 a year for two years for operation of the department, mainly devoted to fire control.

With the establishment of efficient organization for forest fire control, Louisiana lumbermen were warranted in taking chances on growing timber as a crop. Various types of cutting operations were recommended. Leaving seed trees in logging was generally adopted at first as a method of securing a second crop. But when the tracts of timber became smaller and scattered, new types of logging equipment, better roads, and development of markets for low grade material, made it possible for the lumbermen to remove only a portion of the stand at one cutting, thus enabling them to return at intervals—five to ten years—and take out the mature trees that had developed to sawlog size since the last preceding cut. Thus today selective logging is considered a well established practice on more than three quarter million acres in Louisiana. Today also other logging methods are in use by Louisiana lumbermen to insure permanence of their operations. Improvement cuttings now are utilized to remove diseased, defective, crooked and other undesirable trees from the stands, and thus assure high quality lumber for the future.

It is estimated that more than one and a quarter million acres of forest land in Louisiana now are growing as much timber as is being removed from them, and the Louisiana lumbermen will see to it that these lands continue to produce at maximum capacity in so far as conditions permit. Research and efforts devoted by Louisiana lumbermen to assist

■ **Top—Stand of young second-growth longleaf pine in Louisiana. This area was naturally reforested.**

■ **Bottom—Stand of second-growth Southern pine in central Louisiana that has been selectively logged.**

■ **Second growth longleaf pine that has been thinned to improve growth and quality of saw-timber.**

Nature in growing trees give assurance that the Louisiana Southern pine lumber of tomorrow will be of high quality, with a much smaller percentage of lower grades than in the past.

Among other factors contributing to the present wholesome condition of Louisiana's forest products industries is the fact that some 500,000 acres are under the state's reforestation contract for periods ranging up to 40 years. Many Louisiana lumbermen have experimental work underway, such as sample plots to determine density of stand, number of trees per acre, etc., to get maximum board feet production per acre per year. Thinnings and pruning are employed to improve both quantity and quality of tomorrow's Southern pine lumber in Louisiana.

Louisiana has the largest acreage of forest replanted by any individual or corporation. This tract covers some 30,000 acres replanted to longleaf, slash and loblolly pine seedlings. Another private tree-planting project covers 12,000 acres in West Louisiana. A total of more than 100,000 acres of yellow pine seedlings have been planted in this state.

Planted areas attract the public's eye, but selectively cut areas immediately following logging operations are not so attractive in appearance. But the public must be induced to realize that a green forest or just leaving trees standing do not alone constitute effective forest practices. Cutting practices and methods must vary with location, ownership, age of stands, fire sentiment, taxation and various other things, and trees must be harvested when they reach maturity if the forests are to continue to contribute their proper share to maintain government, stabilize employment of labor, support dependent communities, and furnish necessary material for the construction needs of the country.

Louisiana lumbermen recognize their obligation to keep their timber stands growing at maximum capacity in order to pay taxes, meet payrolls and furnish employment, as well as contribute to the esthetic values derived from forests.

"CONTROL YOUR FIRE"

Did you ever hear the Indian saying about fires?

"White man build heap big fire. Have to stand back. Fry on one side, freeze on the other. Indian build little fire, get up close and keep warm."

The small fire keeps one warmer and it is easier to "kill" when you leave camp. Any fire is a servant when it is under your control; a wrecker of all outdoors if it breaks loose.

Control your fire.

It pays.

■ **Natural reproduction of Longleaf pine coming in under seed trees.**

Archaeological Exploration in Louisiana During 1938

By J. A. Ford *

The Works Progress Administration Statewide Archaeological Survey Project, sponsored by Louisiana State University, began operation late in September. The primary purpose of this project is to examine several town-sites of the aboriginal inhabitants of the state with a view to discovering all possible details of their daily life and history. Thorough excavation of carefully selected "key sites" is the next step in the study of Louisiana's archaeological history following the preliminary survey of sites reported in Anthropological Study No. 2, published by the Louisiana Department of Conservation.

As set forth in Anthropological Study No. 2, the earliest people to practice intensive agriculture, make pottery, or build mounds, appear to have been those having the peculiar cultural complex to which the name "Marksville" has been given. There is evidence that as time passed this ancient culture slowly changed into a form that is now referred to as the "Coles Creek Complex". This stage was also prehistoric and in turn was followed by the particular cultural forms practiced by the Indians whom the early explorers found in Louisiana toward the end of the seventeenth century, the Natchez and the Caddoan groups.

Using the accumulated information made available by the preliminary survey, it was a very simple matter to select two village sites for intensive excavation which would produce information about some of the least known cultural periods. One of the sites selected was located on the farm of Mr. D. M. Crooks in LaSalle Parish, near the north end of Catahoula Lake. From surface indications this promised to be a site which had been settled and abandoned within the Marksville period and thus would give a pure sample of the varieties of articles used during this time.

One unit of this project was set up for the excavation of this site. This consisted of fifty workmen, two foremen, a timekeeper, six clerks and technicians, and two experienced archeologists, Arden King and William T. Mulloy in charge.

The principal earthworks at the site are a large conical mound, 17 feet high and 150 feet in diameter, and a smaller mound about 4 feet high and 80 feet in diameter. Mounds of these sizes and shapes seem to be characteristic of the Marksville period.

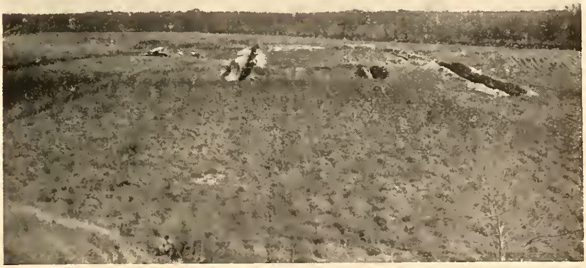
SURVEY OF THE SITE

Work on the site began with a survey. The entire area was laid off in a grid with stakes set at five-foot intervals, each stake properly numbered to facilitate mapping of discoveries. Levels were taken on all stations so that both a vertical and horizontal record could be maintained. The method of excavation decided upon was "slicing". A trench five feet wide was begun along a line of the survey stakes well outside the mound on the North side. This was carried down into the subsoil. After the trench was completed and the strata showing in its walls examined and plotted, another five-foot slice, adjacent to the first and further in toward the mound was taken down in a similar manner. As the slicing progressed into the mound in this manner the removed earth was thrown out away from the structure so that when the work is completed the entire mound will have been moved five feet to the northward.

At present the excavation of the Crooks Mound is about half completed. Not long after the work was begun it was discovered that the mound had been built in three stages. The first, or inner mound, is about five feet high and is flat-topped. Some of the sixty burials so far discovered were in this mound, but most of them had been placed on its surface at the time of the addition of the additional construction that forms the second and third mantles.

The pottery and other material that is found accompanying the burials and scattered through the soil of the structures is typical of the Marksville period as was expected. Although pottery vessels and broken fragments of vessels are most common, other finds consist of projectile points, boat stones, plummets, copper objects, and ornaments of shell. The bones of the burials, themselves, are in a very poor state of preservation.

The second excavation unit of this project was located at an old Indian village site on the property of Alfred Greenhouse, in Avoyelles Parish, two miles east of the town of Marksville. In reality the Greenhouse place seems to be the northern extension of the large village site which has provided the name for the



■ **Fig. 1. A view of the Greenhouse Site from the top of the Avoyelles Prairie bluff. Note the six mounds arranged around the plaza. Exploratory trenches cut across the plaza.**

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* Research Associate in Archaeology, Louisiana State University.

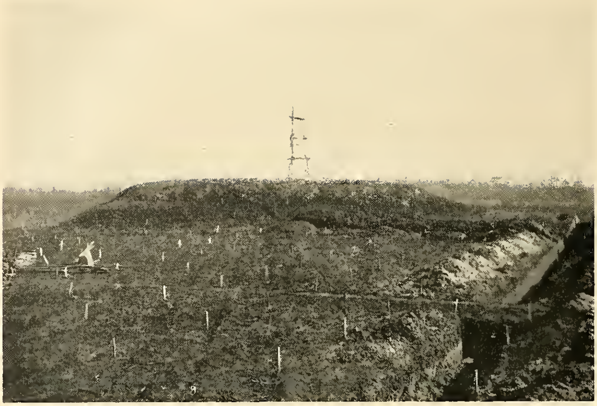


Fig. 2. The largest mound at the Greenhouse Site. In the wall of the exploratory trench in the right foreground can be seen the stratum of Red River soil overlying the grey soil deposited by the Mississippi River.

Marksville cultural stage. This Marksville type site was excavated by the U. S. National Museum in 1933. It consists of several mounds and an extensive occupation area lying along the top of the bluff that forms the eastern edge of the Avoyelles terrace. The three sides of the village not protected by the steep bluff are guarded by an earth wall fortification.

The Greenhouse Site lies a little more than a mile north of the Marksville enclosure and is down on the floodplain, about two hundred yards east of the bluff. The principal earth works at this site are six truncated pyramids which are arranged around an open plaza about 250 feet in diameter. The two largest mounds stand at opposite ends of the open area. Mounds of this type served as substructures for wooden temple buildings. Indications of the earth stairways that led down the side of each mound into the plaza can still be seen on several of the mounds.

The Greenhouse Site was selected for excavation because of the very interesting condition shown hy the material collected from its surface. This material was predominantly typical of the Coles Creek period but also showed a small percentage of the earlier Marksville types. Thus there is the possibility that this town may have been settled by the people who abandoned the old Marksville village one mile south on the top of the bluff. From the bottom to the top of the gradually accumulated refuse dumps here the excavators might expect to find a gradual evolution from the Marksville types of artifacts to the Coles Creek. Examination of the materials recovered in excavations has since shown this to be the case.

Work on this site was begun in the early part of October with a crew similar to the one used at the Crooks Site. Stewart Neitzel and Edwin Doran are in charge of the unit. As usual, grid stakes were first set over the entire area of the site. However, in a village of this type the problems of excavation are different from those presented by a burial mound. The mound structures may be expected to contain the earth floors of temple structures and the deposits of refuse surrounding the mounds and lying in the plaza must be examined in such a fashion as to differentiate between the older and later materials.

Long exploratory trenches five feet wide were first run entirely across the site, cutting through the center of the plaza but avoiding the mounds. These trenches were excavated very carefully and material was saved in three-inch levels. Over most of the area the trenches only had to go four or five feet to reach sterile soil. The western edge of the plaza, however, proved to have been artificially constructed and it was necessary to dig down well below the water table to sample the lowest hidden deposits.

The first trenches showed very interesting and unexpected situations. As long as the oldest residents of Marksville can remember, the Red River has been flooding this site annually, leaving each time a deposit of the striking red soil carried by its waters. This has formed a stratum from one to two feet thick over the entire plaza of the village—a stratum that contains practically no cultural material. Underneath this stratum is gray soil which is characteristic of Mississippi River action. The village remains are on top of and in this gray Mississippi soil.

This situation can only mean that the Greenhouse Site was abandoned before Red River began flooding the territory east of the Avoyelles Prairie. Since it is well known to geologists that not so many hundreds of years ago Red River was leaving its present channel in the vicinity of Alexandria and flowed down the present course of Bayou Beouf and Bayou Teche, it appears probable that the inhabitants had left the Greenhouse Site before the Red shifted to its present channel.

As the exploratory trenches were extended outside the plaza they showed further surprising conditions. Immediately beyond the mounds bordering the eastern side of the plaza the old Mississippi ground surface sloped very sharply downward. Since it was impossible to follow it very deeply by trenching, soil

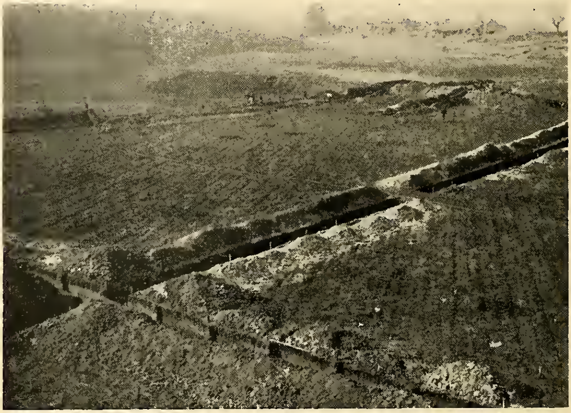


Fig. 3. View from the photography tower on the large mound at the Greenhouse Site. The exploratory trenches shown are cutting across the plaza. Examination of the temple floors in mound E, shown in the right background, has begun.

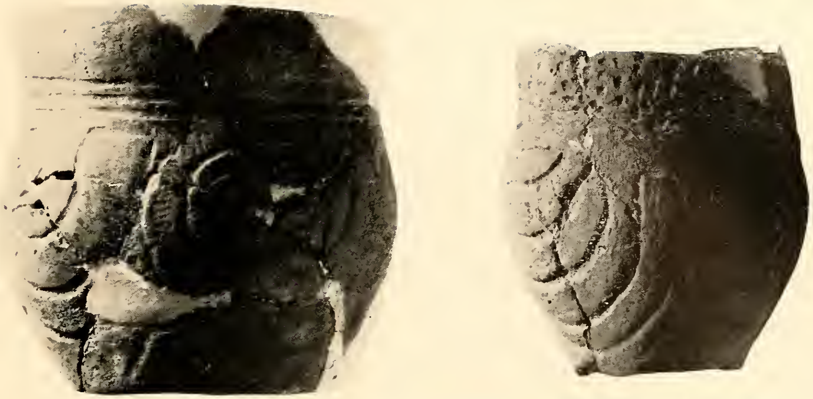


Fig. 4. Two pottery vessels of a Marksville type found with burials at the Crooks Site.

augers had to be used. Traverses run by this means show clearly that at the time the village was occupied it was on the banks of a broad lake left as a cutoff meander of the old Tensas-Black River course of the Mississippi River. Boreholes to the north, west, and south of the plaza showed that the earth taken for the construction of the mounds had been dug in such a way as to form a wide moat around the other three sides of the plaza. While the site was occupied all these ditches were full of water but since its abandonment Red River has come in and filled them all with its typical brick-red soils.

Examination of two of the smaller mounds bounding the plaza has begun. Trenches are being run in from the four sides of each mound, taking care not to cut the stairways which normally would come down the middle of one side. As temple floors and occupation levels are encountered in the end of these trenches they are raised so as not to destroy any of the structures. As these trenches are able to cut well into the slopes of the mounds they have shown that each mound is composed of several mantles, each being a layer of a few feet of earth placed over a destroyed temple floor and its smaller mound substructure. Thus it seems probable that each of the mounds at this site will prove to contain a number of superimposed temple floors.

Enormous quantities of garbage, the refuse accumulated during the years in which the site was occupied, are being recovered in the course of the work. This consists mainly of pottery, animal bones, bone tools, broken ornaments and some entire articles apparently lost by the inhabitants. A remarkable feature is the absence of human burials. So far only three human bones have been found. This scarcity of burials appears to be a feature of most sites of the Coles Creek period, and at the Greenhouse Site discoveries have been made which may serve to explain this condition. Several pits about seven feet long, three feet wide, and four feet deep, shaped something like very deep bathtubs, have been found. The interior walls are burned to the consistency of brick, indicating large and long continued fires. A layer of ashes a foot or more thick lies in the bottom of each pit. Possibly these are crematory basins used to dispose of the dead by burning—a well proven custom of a contemporaneous people further to the north.

The two field units of this project are producing data in large quantities. This consists not only of specimens but also of notes, engineering records, profile drawings, maps, and photographs. To handle this material, make permanent records, catalog and classify the specimens, digest the findings and prepare them for publication in final archaeological reports, a Laboratory Unit of the project was established in New Orleans during the latter part of October. The laboratory occupies a floor of the Department of Conservation building at 336 Chartres Street and employes 32 people. Mr. Gordon Willey is in charge.

As material is brought in from the field, it is successively washed, catalogued, restored wherever possible, classified, and type specimens are photographed. Results of the classification are calculated and graphed so as to show the temporal changes that occurred. Other divisions of the laboratory staff are at the same time copying field notes and making final copies of strata profile drawings and maps. An attempt is being made to operate the laboratory in such a way that in its work it keeps very close behind the work of the field units.

A fourth unit of the project, under the direction of Dr. Andrew C. Albrecht, is located at Louisiana State University and is engaged in research into the history of the Lower Mississippi Valley at the period of first contact of the native peoples with the white explorers. This data will serve to tie together the history and pre-history of the area.

At present preparation is being made to begin dendrochronological studies. In the southwestern states the study of the annual growth of trees has made it possible to assign accurate dates to the occupation of prehistoric sites. It is hoped that these studies may also be successfully pursued in the Lower Mississippi Valley so that eventually the actual dates of the prehistoric ruins of this area will be known.

◆

A doe can have fawns after two years. The gestation period lasts from about 205 to 212 days.

◆

Buck deer often stage terrific battles during the rutting season in the fall, butting with their heads, fencing with their antlers and slashing with their forefeet. Sometimes they battle to death, as when their antlers become locked and they tussle until they fall exhausted, either to starve to death or to be killed by some animal.

◆

Naturalists' accounts testify to the good fellowship of deer. Seton cites the case in which two bucks were running together when one was wounded by a shot. The other stopped, waited for the other to catch up and ran with it.

It is not uncommon to see two young bucks traveling with an old fellow, in the winter-time.

And does frequently adopt orphan fawns.

DR. HOWE'S PREDICTION THAT "WILCOX FORMATION" WOULD PRODUCE OIL

The first commercial oil production was obtained from the "Wilcox formation" when Sidney Richardson completed the well, Haas No. 1, in Section 7, Township 2 South, Range 3 East, Avoyelles Parish, at a depth of 8520 feet.

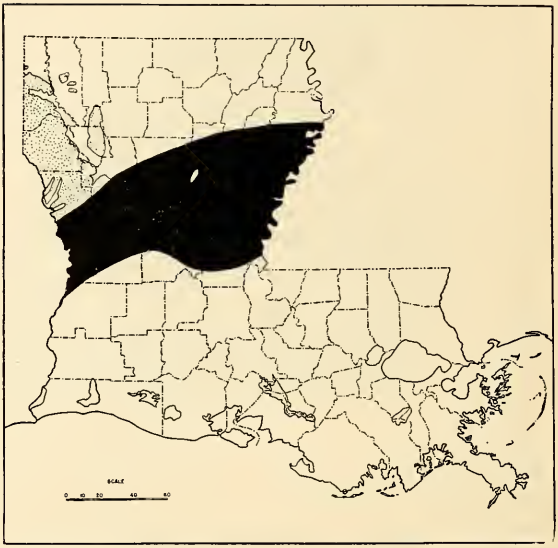
In a report entitled, "Louisiana Petroleum Stratigraphy," published by this Department in 1936, Dr. Howe states that, "In coastal Louisiana commercial accumulations of petroleum appear to be definitely associated with shoreline sediments. On the attached map, the writer has indicated in black the areas which he considers most likely to contain accumulations of Sabine [Wilcox] oil. He has drawn the northern limit approximately along the Sabine [Wilcox] shoreline, which corresponds fairly well with the contour representing 2000 feet of thickness for the formation. He has placed the southern limit where the formation should be reached by 8000 to 10,000 feet wells. Its position necessarily has been deduced from regional dips of the younger Claiborne and Jackson formations encountered in wells."

The term Sabine Group is used by Dr. Howe in place of the term Wilcox. Dr. Howe published a paper in 1933 presenting evidence for preference of the use of the term Sabine Group in place of Wilcox Group. The Wilcox is the upper member of the Sabine Group and the term Mansfield is applied to the lower member.

Dr. Howe states further that, "It is rather surprising that the Sabine [Wilcox] has not attracted more attention as a possible source of petroleum. In that part of Sabine Parish, where the marine facies of it is exposed, numerous oil seepages have been reported. In the vicinity of Negreet, wells drilled a number of years ago encountered more than two thousand feet of sediments which contained many shallow water marine beds, from some of which shows of oil and gas were reported."

This report was published some three years ago when the maximum depth most wells were being drilled to at that time was about 10,000 feet. Today, with wells being drilled to depths of 13,000 feet or more, the "Wilcox formation" can be reached at this depth farther south than is shown on the accompanying map.

Because of the tremendous thickness and extent of the "Wilcox formation," this discovery is considered to be of major importance to the petroleum industry. The unravelling of the geological history of the State, through the publishing of geological bulletins by the Geological Division of this Department, has encouraged the exploitation of horizons which would otherwise have remained undrilled.



■ **The dotted area represents the out-crop of the Sabine (Wilcox) group (after Moody). The shaded area indicates the portion of Louisiana where Sabine production is most likely to be obtained. The northern limit corresponds to the region where Sabine sediments tend to change from continental to marine. The southern limit represents an estimate of where the Sabine could be reached by 8,000 to 10,000 foot wells. The white area within the black is the Urania field where production has been obtained from the Cane River formation of the Claiborne Group.**

* * *

POLLUTION TO BE DISCUSSED BY WILDLIFE GROUP

Pollution, the despoiling of waters which results in millions of dollars loss to this country each year, will be one of the all-important subjects to be considered at the Fourth Annual North American Wildlife Conference in Detroit the week of next February 13.

This highly controversial subject will be threshed out at one of the panel discussions arranged by The American Wildlife Institute, which sponsors the yearly Conferences. Following brief outlines of different thoughts from outstanding authorities, the matter will be thrown open for public discussion from the floor of the meeting.

A comprehensive pollution measure is expected to be placed before the next session of Congress. The outcome of the panel discussion at the Detroit Conference may play an important part in the final treatment of that legislation by the House and Senate of the United States.

The pollution problem is only one of many to be treated in open forum at the Conference. In each instance, the subject under consideration will be treated by leading authorities, then the matter will be thrown open to the public for a free-for-all discussion.

Concurrent with the panel discussions, there will be technical sessions at which eminent scientists and wildlife authorities will disclose their discoveries and developments during the past year.

The annual meeting of The National Wildlife Federation also will be held during the Conference.

* * *

FOR DIVERS REASONS

There are about 200 distinct species of wild ducks in the world. One-fourth of this number is found in North America. Some of the divers have been recovered at depths of 90 feet by fishermen with nets. The ruddy duck is one of the smallest of our ducks, but his lady produces an egg as large as that of a great blue heron.—From the American Wildlife Institute.

* * *

Contrary to the belief of many casual hunters, deer are not mute creatures. They have a number of different sounds which they use for different occasions. They whistle, snort, bleat and squeak.

The Prevention of Pollution

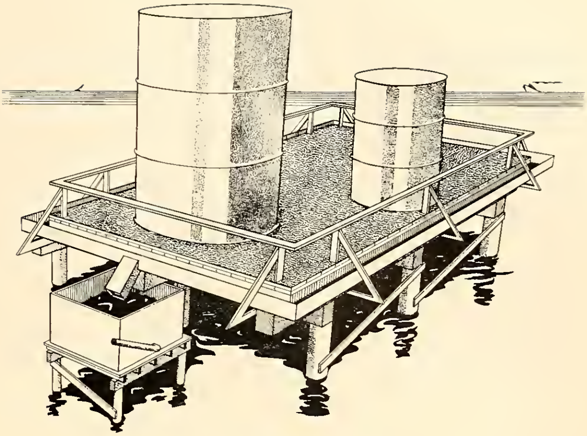


Fig. A.—*By Roy H. Odom.*

Various devices have been installed by oil companies in Louisiana, to prevent the pollution of adjacent waters by waste from their operations, in accordance with regulations promulgated by the Department of Conservation several years ago.

In some instances the operators themselves have taken the initiative in the installation of approved paraphernalia. Donald E. Fuellhart, Department engineer, illustrates with photographs some of the methods employed in several coastal fields where the problem of oyster contamination is considered acute.

For example, in Quarantine Bay valuable oyster reefs are in the immediate vicinity of the drilling and producing wells. Figures 3, 4, 6 and "A" illustrate the methods employed by the Gulf Refining Company to prevent pollution. Although the stock tanks are constructed as leak-proof as possible, any leakage from them or the connections, drains from the oil and water-proof floor into the steel oil gutter around the stock tank platform, then into steel tanks placed at each end of the platform.

Rain-water falling on the stock tank platform likewise drains into these tanks and since oil is lighter than water, the water settles to the bottom of the tanks, where it is drained off by simply lowering the "riser." When all the water is

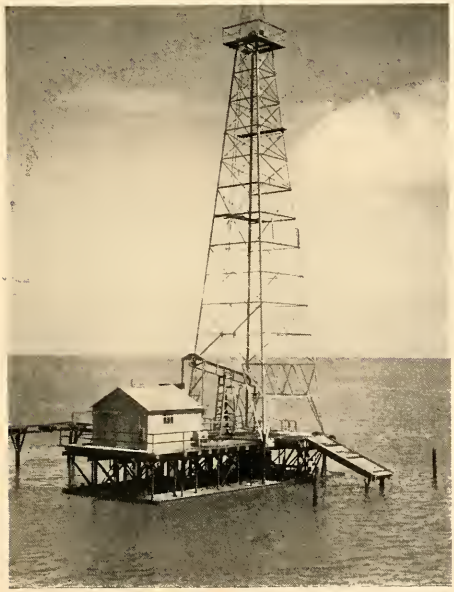


Fig. 1

Fig. 2

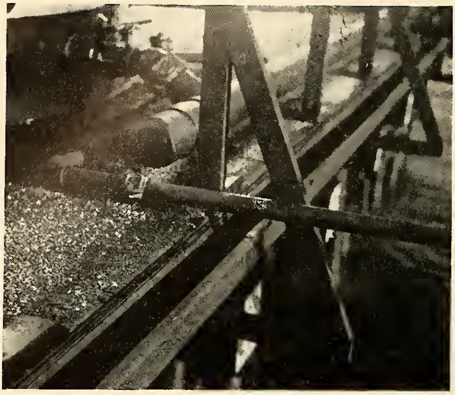


Fig. 3

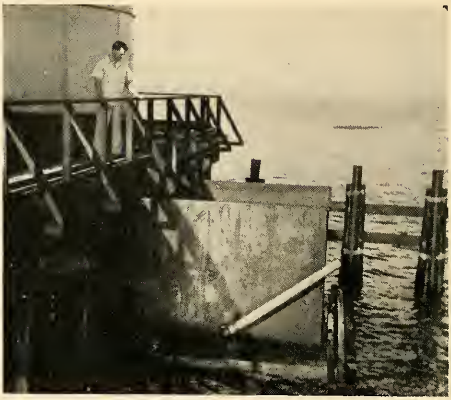


Fig. 4

drained the "riser" is raised. Oil accumulated in the catch tanks is pumped back into the stock tanks.

Figure 2 shows a pile bulkhead at the left, placed as a hurricane protector to the stock tank battery.

Oil leakage to the smallest drop, from the Christmas trees of flowing wells in the Lake Washington field, is caught in the drip pan shown in Figure 5. On the far side of the drip pan a valve is placed where the accumulated oil may be drained into buckets.

Most of the producing wells of the Texas Company in the Lake Barre field are now "on the pump," which necessitates at intervals pulling rods and tubing. To prevent pollution by oil from this operation the derrick floors are constructed of concrete, and designed so as to drain to the center as shown in Figure 7.

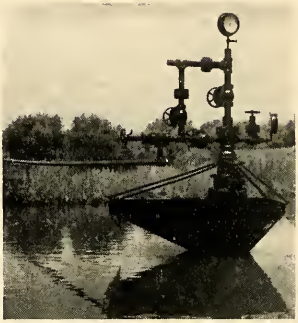


Fig. 5

The oil falls into a steel tank beneath the derrick floor and is drained into boats. Figure 1 shows a pumping barge unit with the concrete derrick floor and drain tank between the floor and the barge deck. This barge assembly is floated over the well, sea cocks are opened, and the barge is submerged by filling with water until it rests on the bed of the bay. If it becomes necessary to remove or drill deeper the drilling barge is floated by pumping the water out of it and towing it away. Then a drilling barge may be floated into place and sunk over the well.

Lake Barre is a choice oyster, shrimp and fish area and the oil operators there earnestly endeavor to prevent pollution of the adjacent waters.

These devices and installations have been approved by Department engineers, who will be glad to examine any other methods for the prevention of pollution that may be advanced by oil operators or others interested in the problem.

Fig. 6

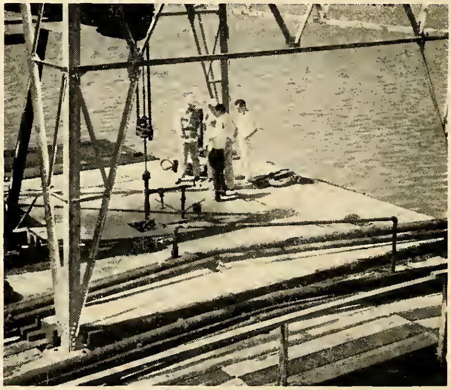


Fig. 7

Wild About Wild Flowers

By Will Branan

Most men are just naturally screwballs about one thing or another—collecting old pewter jugs, driving little white balls hither and yon—

As for me I just dote on wild flowers. You know, the kind that grow out beyond the water works and the garbage dump, where the speed limit is raised to 40 miles per—

Nothing gives me greater pleasure than to jump in the old jallopy on a Sunday afternoon for a drive in the country and a session with Dame Nature.

Other fellows can have their fun with other dames, but give me Dame Nature any time. Safer, less expensive.

Once out in the open spaces, where men are men, even when bitten by chiggers, I can feel the hair on my chest begin to bristle in the most authentic he-man fashion. I do not need the tin cans of the picnickers' trail to tell me that I am approaching some shady dell where the wild hibiscus has retreated to hide her bright blossoms from my questing eyes.

Fortunately I have with me my trusty axe, which I have found from years of experience is much more effective than the jack-knife of the average naturalist. Even a pen-knife might serve to clip a modest sprig, but for my purpose the axe is the instrument par excellence with which to bring down the entire tree, trunk, limbs, boughs, blossoms, etc, etc.

The insouciant fragrance of a flowering honeysuckle assails my nostrils as I finish the hibiscus. Of all the wild flowers I have found this one the most difficult, for it seems to wander about, clinging to this and that, without any definite purpose or objective. However, I am not to be deterred in the pursuit of this hobby, which is indeed something more than a hobby with me—you might even call it an obsession, this love of wild flowers to which I have consecrated my entire life.

So far I have not accomplished a great deal, having denuded only a small sector of the large area of woodland and swamps which surround my native habitat. But if other enterprising citizens would only do their part, and accomplish as much as I do, there would soon be no wild flowers at all—which would give us more room for baseball lots and golf courses and other modern conveniences.

Having obtained my quota of azalea and dogwood and other wild flowers, a full load for the decrepit old jallopy, I am ready for a return to the white lights of the city. If we lose half of our load on the way back, it will help to decorate the highway and also help to solve the problem of a proper disposal of our wild flowers. Having expended considerable energy with the axe, to say nothing of the old jallopy's consumption of gas and oil, it is important that we dispose of our wild flowers in some manner that will reflect credit on our good taste and discretion.

If there were only a few sprigs and blossoms, the problem would be easily solved by our vases and bowls, but large trees and endless vines are apt to make such a mess about the house that there is not sufficient compensation in the beauty and fragrance of the flowers.

What to do! Ah, not for naught that the old bean has been kept in condition all these years, so that when the test comes it never fails me—the one and only unquestionable, irrefutable solution! The garbage can!

Hardly large enough for the by-products of our Sunday excursion, but nevertheless a beginning—what do they have garbage wagons for, anyway?

Looking back over the past I wonder if I have always been a bit of a screwball—or was it the other fellow?

I have a distinct feeling of nostalgia as I recall sticking pins in the cushion of grandma's chair, to the surprise and consternation of that ancient dame—and the acme of my imaginative enterprise when I slipped up behind her, untied her apron-strings and twisted them about her neck so that she almost choked to death. That was the triumph of my juvenile career—and not my fault that the doctors saved her.

I will admit, as others do, that I am decidedly psychic at times. Ofttimes I have a preview of coming events—I can see myself standing in front of Saint Peter, just outside the pearly gates.

"Ahem," says St. Peter. "You are the famous naturalist, I believe. Comrade of Agassiz and others, are you not?"

"Yes, your Honor."

"I understand you are wild about wild flowers."

"Yes, your Honor."

"Well, we have reserved a special seat for you."

"Thank you, your Honor."

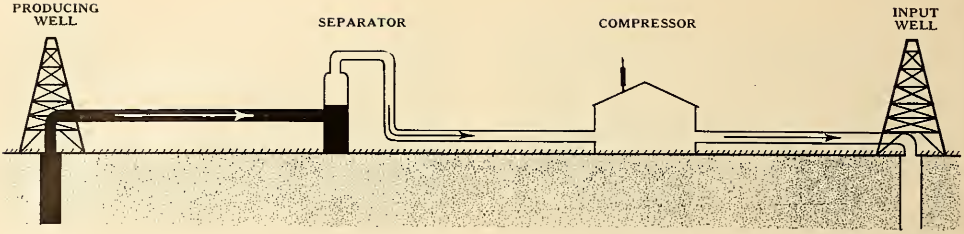
"You may find it a trifle warm."

"That is all right, your Honor. I come from a warm climate."

"Well, you tree chopper, I don't think it is as warm as your next residence. Here, Nick, take him away."

SPORTSMAN'S LANGUAGE

Webster says the well-informed sportsman would say "A bevy of quail; covey of partridge; nide of pheasants; brood of grouse; wisp of snipe; stand of plover; flight of doves; plump of ducks; and a flock of geese."

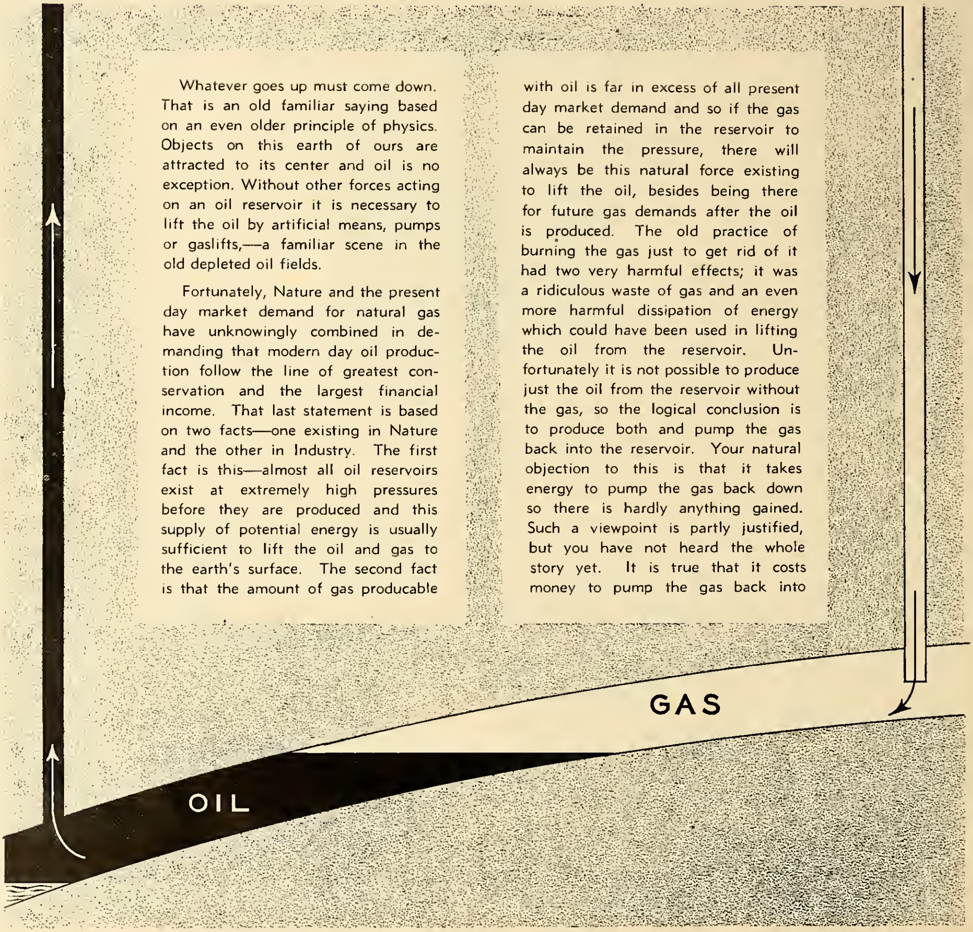


A New Era In Oil Production

By A. L. Vitter, Jr.[*]

Whatever goes up must come down. That is an old familiar saying based on an even older principle of physics. Objects on this earth of ours are attracted to its center and oil is no exception. Without other forces acting on an oil reservoir it is necessary to lift the oil by artificial means, pumps or gaslifts,—a familiar scene in the old depleted oil fields.

Fortunately, Nature and the present day market demand for natural gas have unknowingly combined in demanding that modern day oil production follow the line of greatest conservation and the largest financial income. That last statement is based on two facts—one existing in Nature and the other in Industry. The first fact is this—almost all oil reservoirs exist at extremely high pressures before they are produced and this supply of potential energy is usually sufficient to lift the oil and gas to the earth's surface. The second fact is that the amount of gas producable with oil is far in excess of all present day market demand and so if the gas can be retained in the reservoir to maintain the pressure, there will always be this natural force existing to lift the oil, besides being there for future gas demands after the oil is produced. The old practice of burning the gas just to get rid of it had two very harmful effects; it was a ridiculous waste of gas and an even more harmful dissipation of energy which could have been used in lifting the oil from the reservoir. Unfortunately it is not possible to produce just the oil from the reservoir without the gas, so the logical conclusion is to produce both and pump the gas back into the reservoir. Your natural objection to this is that it takes energy to pump the gas back down so there is hardly anything gained. Such a viewpoint is partly justified, but you have not heard the whole story yet. It is true that it costs money to pump the gas back into



The diagramatic sketch was made by Roy E. Odom, Department cartographer

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[*] Physicist, Department of Conservation.

■ **Tepetate Plant.** [*Photograph, courtesy of Continental Oil Co.*]

the reservoir but not nearly as much as it costs to artificially lift the oil. You are still not impressed, but here is the rest of the story—if that gas is pumped back down, in most cases 40% or more oil will be produced from the reservoir than otherwise would have been obtained. I suppose that demands a little explanation, so let us go back and see just why that is so.

Methods of production of oil in the past have left at least half of the oil in the reservoir, never to be recovered in commercial quantities in this geological age, and when a geologist uses the word age he does not mean a mere century or millennium so we can not very well consider them as future potential reserves. If these facts are new to you, of course you ask **why** such an inefficient process of producing oil—is it the way Nature meant it or has it been just the unscientific methods of man responsible for it. Unfortunately the petroleum industry has only acquired a technically trained personnel within the last two decades or so and until that time the industry had suffered greatly from a group of people whose ideas and theories on oil production had very little if any scientific basis. With the advent of the technologists into the industry it was realized that the recoverable oil from reservoirs could be very materially increased, and it has only been in the last few years that reservoirs began being depleted of more than half their original content. They realized the shortcomings of the industry very soon and did very much to abolish these old practices. Now they have developed a method of producing oil even more efficiently and they call it pressure maintenance. As you have guessed, it is just the common sense solution you came to above,—pump the gas back into the reservoir to maintain the pressure and let it do the work and more too.

Petroleum reservoirs are beginning to be produced efficiently now. Here are outlined a few facts in every-day language that explains the fundamental principles of the latest development in petroleum production, — PRESSURE MAINTENANCE.

It probably is not quite evident why that recycled or returned gas does "more too." There are a lot of reasons, some of which are quite involved for presentation here, but in the main the reason is quite simple. Most of the oil and gas pools are different from each other in most respects but they can be grouped into two classes as far as this elementary explanation is concerned,—one in which the oil exists as a liquid and the other in which it exists as a vapor. If it is in the liquid state it is usually rather dense and viscous,—it does not flow very well through the pores of the sand or limestone formation of the reservoir in which it exists and so a lot of it remains there. But if the gas is returned and flushes the viscous fluid it makes it less viscous and therefore possible for it to flow more readily. The reservoir as a result is drained more efficiently and to a greater degree. If the reservoir is in the vapor state, as it is believed most of our so-called distillate fields are, it usually exists at quite a high pressure and if this pressure is allowed to drop too close to a

■ **Compressor station of Tepetate Plant.**

certain critical pressure an appreciable part of the vapor condenses, wets the sand, is held there by adhesive forces, and is thereafter commercially unproducable. This retrograde phenomenon is very unusual in that these complex hydrocarbon mixtures require a decrease in pressure to condense them. It requires an increase in pressure to condense a single pure vapor. To illustrate, suppose we had some water in a container on Pikes Peak where the atmospheric pressure is rather low and as a result the boiling point of water is a few degrees less than 100°C. If this water was heated to, let us say, 99°C. it would exist as a vapor, steam. Now if this vapor were brought down from the mountain and maintained at the same temperature it would condense to water, that is, the increase in the atmospheric pressure as it came down the mountain was sufficient to condense it. If now, water at this temperature behaved like the hydrocarbon mixtures existing in the petroleum reservoirs which are near their critical point we would have to bring the sample even higher than Pikes Peak or otherwise reduce the pressure to condense it to water.

Another important action of pressure maintenance is to reduce the rate of water encroachment and so prevent channeling of the water to the well bores. There are several other important results of pressure maintenance but this discussion has been intentionally generalized to give you a general picture that might facilitate the comprehension of the success of this new type of oil production.

An outstanding example of such operations is the Tepetate field near Basile in Acadia Parish which is operated by the Continental Oil Co. Other pressure maintenance installations in Louisiana are also being contemplated in the Cotton Valley field, Webster Parish; South Jennings field, Jefferson Davis Parish; a part of the Rodessa field, Caddo Parish; and operations have just started in the Ville Platte field, Evangeline Parish.

And so in this new era of oil production the industry has coined its own version of that old adage: Most of the gas that comes up must go down.

MUSKRAT EDIBILITY

There appears to be a difference of opinion as to the edibility of the Louisiana muskrat. The article on this subject, written by the Conservation biologist, James Nelson Gowanloch, for the Autumn issue of the Conservation Review, elicited much comment of a controversial nature. One of the most interesting letters received by Dr. Gowanloch was the following from D. L. McPherson, Abbeville, La.:

"I read with interest your article on the muskrat. I endorse every word of your article. I subscribe to the fact that the muskrat meat is the tenderest and sweetest of all others that I have ever tried and I have eaten a great many different kinds, even the tail of the alligator. There are many ways to prepare the carcass for consumption but the most satisfactory way for me is to first parboil, then season and bake brown the whole carcass same as roasting a pig. I have eaten of the flesh prepared in many different ways but the baking suits me best.

"One thing about the muskrat (musquash) it is by far the cleanest animal going. Our muskrats are strictly vegetarians. I have read articles of the northern muskrat eating flesh but I never could induce one here to eat any thing but vegetation. I have kept them in captivity and tried to force them to eat beef, fish, crawfish, tadpoles but they refused but as soon as cabbage, carrots, parsnips, turnips and water hyacinths were put in the enclosure they would go for it at once.

"There is a great waste of the finest meat to be had going to waste each year by people not eating muskrat—and people that really need food and could obtain this without cost. If 6,000,000 rats are trapped in Louisiana in a season 6,000,000 pounds of the finest meat to be had is thrown away. Your article fills a badly needed void of information. More people would eat muskrat if they understood the animal and its diet and habits. Many more instructive articles should be written and widely circulated.

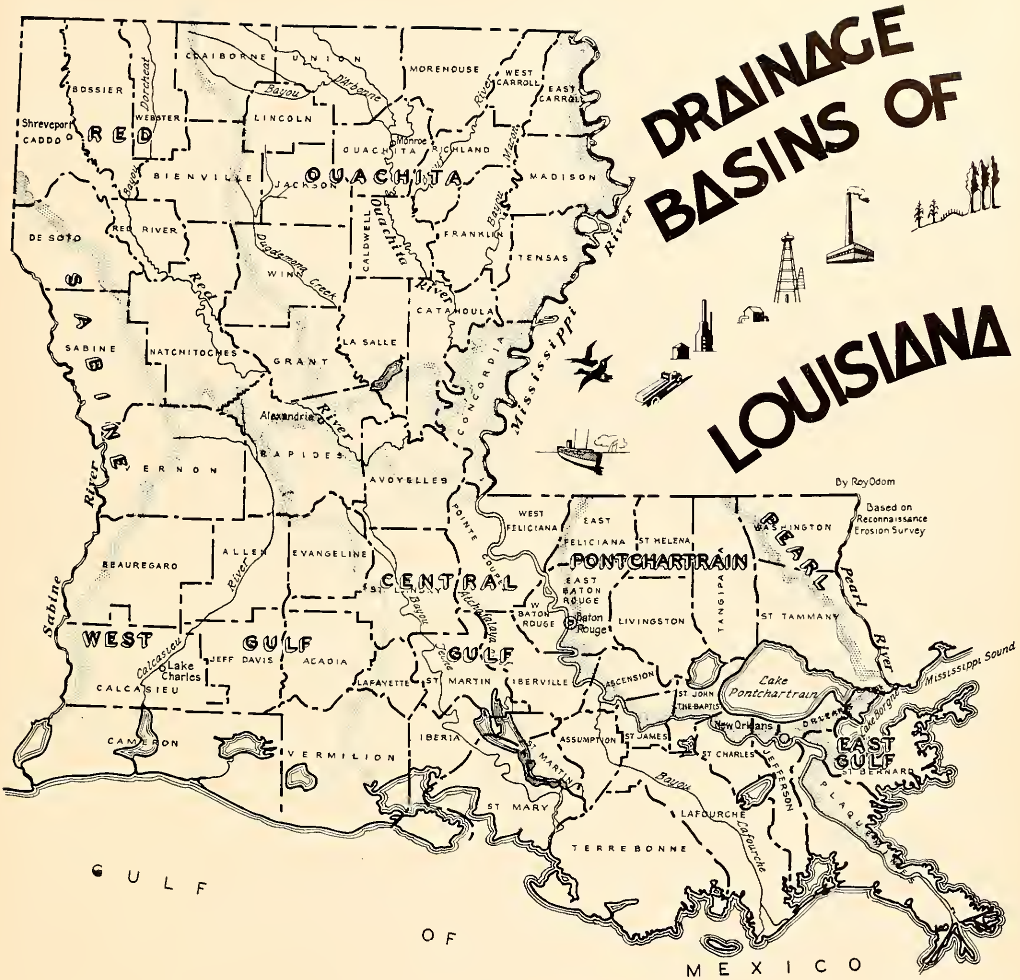
"I will face you in a muskrat feast any day."

BIRD FOOD

How quickly birds can clean up the waste grain in a harvested rice field has been forcibly demonstrated by a bit of research done at the Texas cooperative wildlife research, demonstration and management unit supported by the American Wildlife Institute.

By casting a steel square, one foot in diameter and counting the grain left on different days after a field of rice had been harvested, it was found that within one to three days there remained 74.6 pounds of grain per acre. After seven to 10 days, only 55.3 pounds remained on each acre and after two to three weeks, just 28.9 pounds were left.

■ **An Input well at Tepetate. Plant in background.**



Watershed.

There's a word that is being bandied about quite a bit these days.

What is a watershed?

According to Mr. Webster, it is the "region drained by a river or lake"; in other words a "drainage area."

Very well, Mr. Webster. Using that definition for a starter we will proceed with our discussion of the "Drainage Basins of Louisiana".

Try to follow out the watershed of a small gully. You will find that it merges into the watershed of a still larger gully, or branch, or creek, and so on.

Since there are millions of tiny watersheds in Louisiana, we would probably be wise to write about Louisiana's larger watersheds, or drainage Basins, of which there are not so many.

Louisiana has the distinction of cradling the bottom-end of the biggest drainage Basin in the United States and the third largest in the world, that of the Mississippi River.

This mammoth basin has an area of about 1,245,000 square miles, and includes thirty-one states, and two Canadian provinces.

Geographically located as we are at the veritable mouth of the Mississippi drainage Basin, we are forcibly reminded during flood season of the havoc that can be wrought when the melting snows and floods from the tributaries above descend upon us with malignant fury.

The principal rivers in Louisiana are the Mississippi which forms part of the eastern boundary and flows through the southeastern part of the state; the Red River, southernmost of the great tributaries of the Mississippi which it enters in about latitude 31° N.; the Ouachita which empties into the Red, about 15 miles northwest of the confluence of the latter with the Mississippi; the Sabine River which forms more than two-thirds of the western boundary; and the Pearl which forms part of the eastern boundary and flows into Mississippi Sound.

Spreading over the entire state is an intricate network of lesser rivers, bayous and creeks, which fall into one or another of the general drainage basins. The term "Bayou" according to Dr. W. A.

Read is generally applied to a sluggish stream that is smaller than a river. He holds that the origin of the word is the Choctaw "bayuke" meaning "creek" or "river". In the more level areas of Central and South Louisiana are found many bayous leisurely meandering, sometimes standing and ofttimes reversing the flow of current.

On the Drainage Basin map, the areas title "Ouachita" and "Red", as well as a portion of the "Central Gulf", constitute Louisiana's portion of the Mississippi River watershed. The map shows us that Louisiana is subdivided into eight general drainage Basins.

Please observe that we can claim only two of these divisions as entirely our own. They are the ones labeled "West Gulf" and "East Gulf." All of the others are simply segments of drainage Basins which we share with neighboring states.

The state of Mississippi shares our "Pearl", "Pontchartrain" and "Central Gulf" basins; Arkansas, our "Ouachita"; Arkansas and Texas our "Red"; and Texas our "Sabine".

When the Indians roved the hills and bottoms of Louisiana such things as the direction of stream flow and whether the creeks emptied into Red River or the Mississippi River made little difference.

Today, unlike our red-skinned predecessors, we have reached a high degree of watershed-consciousness. Modern agriculture, transportation, manufacturing, processing and wildlife conservation are all affected to a greater or lesser degree by such water use problems as erosion, floods, drainage, irrigation, navigation, pollution, mosquitoes, salt water intrusion, and water supply.

Probably the first government agency to make an active study of water use problems in Louisiana was the army engineering corps. Their work has been principally the prevention of floods and improvement for navigation. Now, additional Federal and State agencies are taking a hand in the solution of the remaining problems. Social and economic studies of our drainage areas by various agencies are producing valuable information.

Louisiana's location on the physiographic map of the United States is in the Gulf and Atlantic coastal plains province. Its upper surface is generally in the form of a rolling plain sloping gently southward, traversed by many streams.

The mean elevation is 100 feet. The highest elevations, which exceed 400 feet are in the "Ouachita", "Red", and "Sabine" drainage Basins. In these upland areas together with the "Pontchartrain", and "Pearl" Basins exist our most acute erosion problems.

The "West Gulf" basin constitutes the greater part of the state's prairie area; the elevation averages only 20 to 30 feet above Gulf level and irrigation is used for rice culture. Some of our arid states are confronted with the necessity for irrigating all crops. While our rainfall is usually sufficient to supply our agricultural needs, we practice irrigation for rice and a few truck crops.

The "Central Gulf" basin wrestles with drainage problems and the "Eastern Gulf" is mainly concerned with navigation.

While the specific problems are more acute in the areas in connection with which they were mentioned, all of the water use problems are present to some extent in practically every one of the basins.

The Department of Conservation is interested in Louisiana's water use problems because of the effects that they might have on wildlife habitats, water supplies or other natural resources.

While Government agencies have in recent years tackled our water use problems through such projects as Game and Fish preserves, soil conservation work, lakes, spillways, canals, dikes and revetments, there is much yet to be done.

The future will witness the completion of our biological and social and economic surveys, the integrated solution of our water use problems and the spread of soil conservation and wildlife preservation programs. In fact, we are on the threshold of a conservation age which will be characterized by the protection and improvement of our drainage systems through legislation and cooperation.

—Roy H. Odom

FROG FAKES

The following letter, written by E. L. Wickliff, of the Ohio Bureau of Fish Management and Propagation, was published in the December (1938) issue of the Ohio Conservation Bulletin:

"Several years ago we had considerable trouble with a bullfrog company at Fremont, Ohio, relative to crossing the Louisiana bullfrog with the African bullfrog and calling it "Lafrica." The name, of course, being derived by combining the two names.

"We had considerable correspondence with this company as their ideas were biologically unsound, and after several years they moved to Louisiana.

"The attached article, I believe, will give you some idea of the problems involved in the artificial propagation of bullfrogs. For the past few years we have disseminated the same type of information over the state and indicated the almost futility of propagating frogs under present conditions, but a number of our prominent magazines, several of which you have on your mailing list, are still advertising this type of information and possibly the time is now ripe to again put on another campaign. The attached article is to the point and I believe would make good publicity in the magazine.

"Last winter we visited a pond in Franklin county where the owner had purchased some of these frogs. He had some very excellent literature on the subject but unfortunately it did not pan out as written, which is usually the case.

"The people who buy the sporting magazines are the suckers in this case and I do not see why it is necessary for the sporting magazines to carry such information if they are confronted with the facts and are informed that this business is not profitable."

(By Dr. Ross E. Hutchins, Mississippi Bulletin.)

"On the surface the artificial culture of edible frogs sounds like a gold mine. For instance, if a bullfrog lays 1,000 eggs and frogs are worth $3.00 a dozen on the market, then our returns for the progeny from a single female would be around $260.00—if they all lived to maturity! But right there is the catch.

"Numerous inquiries are received by the Department of Zoology and Entomology from people who had read glowing advertisements in various magazines which tell how to get rich almost over night in the culture of frogs for the market. Recently there has come to our attention a case where a man spent over $700 for breeding stock and in the construction of rearing pens. Most of his breeding stock died of one of the many diseases which beset frogs in captivity, and his project may be considered a failure.

"There is no question about the value of edible frogs or doubt that frog-catching is a paying enterprise when carried on where frogs grow in a wild state, but it is extremely doubtful if artificial frog culture is ever an economically sound practice. In 1931 there were 986,736 pounds of frogs taken in the three states of Louisiana, Florida and Tennessee, having a value of $144,527. However, it is to be noted that these were all captured in bayous, lakes, swamps and other natural situations.

"The Southern bullfrog is the largest in the world and as such it has been transported to several countries where it has done well. For instance, 5,000 bullfrogs were shipped to Japan a few years ago and today it is a large industry there with 2,400 families engaged in the business. The system of feeding frogs there is quite simple. Dead fish are placed

[Turn to Page 43.]

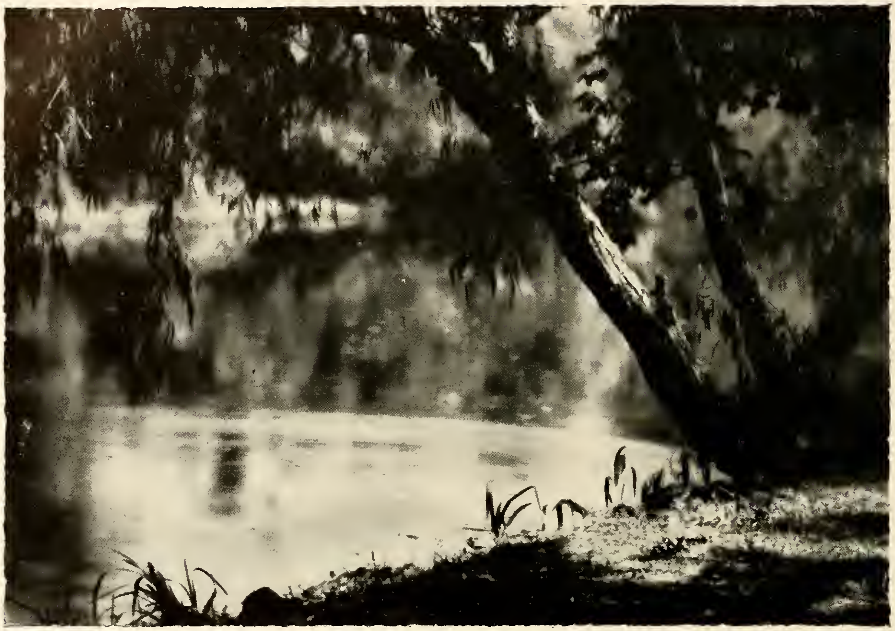
Lovely Louisiana

PHOTOGRAPHIC STUDIES BY DELCROIX

ROAD TO BARATARIA . . . . .

. . . . . if we are to believe the Lafitte legend, swashbuckling pirates travelled this road with their loot—but the treasures of Barataria are not the minted gold and contraband goods of the smugglers . . . . . rather, they are the treasures of Nature which bejewel the bayou and road-way, making this one of the beauty-spots of the world. . . . .

Lovely Louisiana



PEACEFUL COVE . . . . .

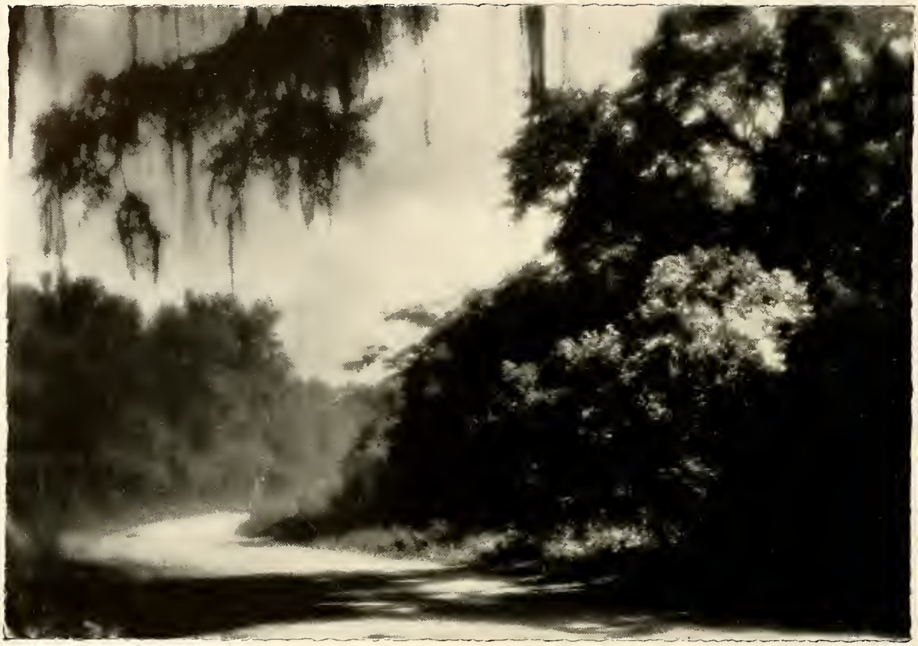
. . . . . we come upon this secluded cove in the bank of a Louisiana bayou . . . . the sun filters through the overhanging boughs and leaves, dissolving the dark shadows in a mellow glow. No hurry and bustle here, only the leisurely movement of Nature's measured order. . . . .

Lovely Louisiana

. . . . . the photographer titles this picture "harmony," doubtless thinking that in this rare composition there is a harmonious relationship of the works of Nature, of land and water and sky. Which is true, but we trust that there is also "beauty in the eye of the beholder" to achieve a real appreciation of the photographer's art.

HARMONY . . . . .

Lovely Louisiana



SUMMER'S MORN . . . . .

. . . . . life is renewed by a stroll along this country road in the crisp morning air, laden with the elusive scent of wild flowers and the faint noises of unseen animals. The woodland shadows slowly retreat before the rising sun, prescient of the noon-day heat. . . . .

Lovely Louisiana

. . . . . bordered by rising hillock or shady dell, this winding country road leads to the little village, taking its siesta in the noon-day sun . . . . . a drowsiness descends upon the earth, the only sound that of the barking dog at our heels . . . . .

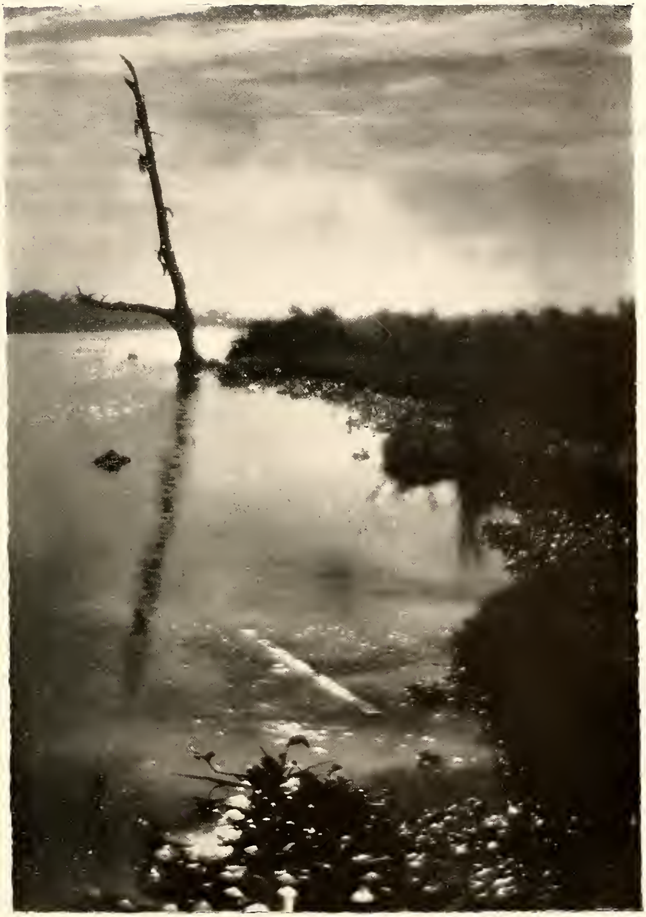
ROAD TO OLD TOWN . . . . .

Lovely Louisiana

LOUISIANA CYPRESS SWAMP . . . . .

. . . . . the virgin cypress makes her last stand against the ravage of reclamation . . . . sun-light drifts down through the festoons of Spanish moss, touching the dark waters with a magic that dissolves in deep purple and green shadows . . . . wildlife is prolific here, wild animals without fear, but in the distance the portentous crash of falling trees is heard . . . .

Lovely Louisiana



LONE SENTINEL . . . . .

. . . . . at the juncture of marsh-land and bayou stands the lone sentinel, stripped of all the trappings of his former grandeur in the forest primeval . . . . . a silhouette familiar to the eye of the Louisiana woodsman. . . . .

Lovely Louisiana

BELOVED . . . . .

. . . . . no tree is quite so dear to the folks of Louisiana as the oak, whether encountered in the century-old grove or in the solitude of a single tree that casts its shadow across the country road . . . . . an invitation to tarry awhile under its spreading arms and meditate upon the eternal verities . . . . . hearken to the faint hum of bees in the nearby field. . . . .

Alfred, the Alligator, and His Descendants

By
Harold R. Smith

Alfred eyed me lazily through the wire fence separating us, and then, seeming to resent my nearness, turned and slipped unconcernedly down the embankment to waddle in the inviting mud and water at the bottom of the ditch. Once there, he settled comfortably in his cool bed, shaded from the warm summer sun by an overhanging willow. Life in captivity was extremely dull for Alfred, who, along with some forty or fifty others of this reptile species, had been abducted from his native haunts in the Louisiana swamps, and now was doomed to an unexciting, though peaceful, retirement on the alligator farm of F. C. Luthi, New Orleans business man.

Alfred is a dreamy sort of chap, and as I watched him lying there in his wire-enclosed yard, I felt certain that his thoughts were reminiscent of days gone by. Days when he and Mrs. Alfred swam freely and unmolested in some out-of-the-way bayou, and returned to their mud and grass home with jaws full of minnow, crab, garfish or turtle, to appease the appetites of thirty or forty little alfreds, anxiously awaiting their return. Or, if he were particularly cunning, and he could be cunning on occasion, Alfred would snare the mink, o'possum, raccoon and muskrat for his forty hungry children. Even, in fact, could he load the larder with an unlucky cow or calf that had carelessly waded into the bayou to drink. For Alfred is by no means a runty fellow, his mud-incrusted hide extending some twelve feet from snout to end of tail, his weight close to five hundred pounds.

Alfred, I might add, is the granddaddy, by right of age and size, of this unusual farm, which was originated by Mr. Luthi as a hobby, and which, strangely enough, is located within the city limits of New Orleans, just a mile or so out of the city proper, on one of the State's main highways.

This farm, so far as known, is the only one of its kind in the State. At the time of its founding, four years ago, it consisted of twenty or thirty mature alligators and several hundred young, which were taken, in the main, from surrounding swamps and marshes. In the few years since that time its inhabitants have increased regularly, through birth and additional hunting trips to the swamps, the total population now being fifty-odd mature gators and six or seven hundred young. Mr. Luthi has in no way commercialized his hobby, and employs two caretakers, who are always on hand to welcome visitors and show them about.

DOMESTIC LIFE OF THE GATOR FAMILY

Let us contrast Alfred's present life with his past. Living as he is now, with other fully matured gators in one of the farm's several wired-in pens, he and Mrs. Alfred are separated from their young soon after birth of the baby gators, because it is known that the parents, when held in captivity and imprisoned in a comparatively small space which contains no wildlife to be attacked and devoured, will show no compunction about killing their own young.

Alfred's food, which was formerly provided by Nature in the form of wildlife, now consists mainly of chicken entrails and fish, thrown him regularly by the care takers. It is amusing to see the gators, young and old, come crawling quickly from whichever corner of the pen they happen to be in when one of the caretakers, who is quite proficient at imitating their call, assembles them for their one daily meal.

While it is true that the gator's daily activities are limited while in captivity, in that his surroundings are much less spacious, it has been found that he usually will go about nest-building and breeding in a natural manner despite the fact that he is crowded into a closed-in area with numerous other alligators. Alfred and the Mrs. will spend without fail some six or seven days in the Spring constructing a nest from mud, grass and twigs, wherein between thirty-five or fifty eggs will be laid in late June or early July, and from which the new-born gators will come forth in September, as one, for the first-born will not leave the nest till the last egg is broken.

It is only during this period of nesting that an alligator will show aggressiveness to man, for, unlike the crocodile, he will not attack human beings unless molested, but will immediately swim or crawl away at their approach.

MRS. ALFRED'S BLESSINGS ARE LITTLE ONES

While it is not believed that to be held in captivity will stunt or retard an alligator's growth to a great extent, it is only while in captivity that accurate study of their growth is possible. Careful watch and check of the gators on Mr. Luthi's farm indicate that an alligator at birth is

[Turn to Page 43.]

FIGHTING FOREST FIRES

By
V. H. Sonderegger

The greatest enemy of forest development is fire. Forest fires in Louisiana and the South in general destroy the grasses and the young seedlings in the grasses, thereby depriving the future of a new timber crop. It is very unfortunate that the public should disregard the value of the embryonic timber growth that is annually reproduced in the grass and ground cover of the forests. Over ninety-nine per cent of all forest fires are man-made, either through intent or through carelessness. Less than one per cent are uncontrollable fires and caused by lightning.

Beginning in the latter part of August, 1938, a very dry season started, creating a hazardous condition in the forests throughout the State of Louisiana as well as the Southern States. The Department of Conservation's Forestry Division and the Civilian Conservation Corps have been on duty night and day since September fighting these fires. With the well established system of fire towers, on which the State has thirty-six, and with over three thousand miles of telephone lines connecting the towers and the homes of the employees, the fire situation was well handled and the loss kept down to a small acreage. Although the year has not ended as this is being written, 2,715 fires have been reported with a loss of 75,910 acres, making an average of 28 acres per fire.

Recently the press carried front page stories about the forest fires with loss of human life in California and Pennsylvania and the destruction of large areas in the Southern pine region. Probably the indifference and carelessness in Louisiana is attributed to the fact that our forest fires have never caused the loss of human life in this State, although we have had several fires that have incapacitated forestry employees but not seriously.

TYPICAL LOUISIANA FOREST FIRES

Forest fires in Louisiana, under proper conditions, cannot only cause physical damages to the individual but will destroy homes, improvements and other buildings in their path.

Included in this article are three photographs of typical Louisiana forest fires:

A. This picture shows the fire going through the stand of young second-growth pine, destroying the ground cover and damaging the trees.

■ A. Fire sweeping across second growth of long leaf pine forest.

■ B. **Fires burning a protected area of natural reproduction. Note seed in foreground and young trees adjacent to the seed tree.**

B. Forest fire is shown travelling through a protected area which is being regenerated with young seedlings from seed trees.

You can readily see the fire is damaging the young timber as well as the seed trees.

C. This picture shows fire in the Florida Parishes of Louisiana on a merchantable stand of timber, which is burning with terrific heat caused by the heavy undergrowth of grass and palmetto. This type of fire not only destroys all the ground cover but kills many of the trees and damages the remainder, causing the landowner and the State both to lose a future timber supply and industrial activities.

All of these pictures graphically describe the damages created by forest fires. The loss is not only to the young timber and standing timber but the range grasses are destroyed as well as the breeding grounds for quail, turkey, deer, and other wild life essential to agriculture as well as hunting.

The Department of Conservation inaugurated a systematic fire protection system for the State of Louisiana in 1920. After eighteen years with efficient administration, the Department of Conservation now protects seven million, three hundred thousand (7,300,000) acres of forest lands with the system of towers, telephone lines, and year-long employees.

LOSSES AVERAGE UNDER 2 PER CENT

The losses sustained in the past five years vary from two per cent of the total to as low as seven-tenths of one per cent of the total.

The public in general has responded in the last few years and has become "forest minded", giving the Department of Conservation exceptionally fine cooperation. However, the incendiaries and careless public must be policed more intensively. One individual, with a box of matches, can destroy a large acreage of forest land in one day. Incendiaries have various reasons for burning the woods, all of them fallacious. The general idea is to burn the dry grasses off in the Winter time so that the green grasses can sprout in the Spring. Very little is gained in this as the best grasses are destroyed and cannot reproduce, and the only grasses that survive are the sedge grass and similiar low food content grasses that are of very little value for the range. Many farmers still believe in the idea of burning grasses to eliminate the boll weevil; however, the grass fires do not destroy the boll weevil in any amount and this insect hibernates under cover which is not susceptible to fires.

There are many other reasons, but all of them are fallacious; instead of gaiining any advantage the reverse is to be found, namely destroying the young timber growth, the valuable range grasses, and the wild life that depend upon the reproduction of forest and ground cover for natural habitat.

■ C. **A hot fire of dry grass and palmetto in merchantable second growth pine.**

The forest fire protection system in Louisiana is a three-way project. The landowner pays to the Department of Conservation two cents per acre per year. The Federal Government appropriates $51,000 per year, and the State of Louisiana has appropriated $150,000 per year for the years 1938 and 1939. In addition, the State Legislature has appropriated $200,000 per year for the maintenance of the projects developed by the Civilian Conservation Corps in the State of Louisiana.

PUBLIC CO-OPERATION IS ESSENTIAL

With the financial aid, as well as the support of these agencies, there is no reason why Louisiana cannot increase its protected forest area materially in the coming years, but the State and Federal agencies cannot get full results without the cooperation of the public at large. The cooperation that the Department of Conservation asks for is that the citizens of the State be careful with fires in the woods, caution their families or employees to be careful with fires also.

One of the greatest assets to fire protection is the cooperation of the public at large in assisting to apprehend the incendiaries who are causing a large number of forest fires in the state.

In 1937 the following percentages with causes were shown for forest fires:

Lightning	.4
Railroads	1.6
Campers	1.8
Smokers	8.6
Brush burning	4.6
Incendiary	58.4
Logging	7.0
Miscellaneous	17.6

(Turn to Page 46)

What Palms Grow In Louisiana

By
Miriam L. Bomhard

PART V

Arecastrum Becc. Queen palms.

> Distinguishing features: Trunk tall, smooth, grayish, clearly marked by the widely spaced, encircling leafscars; leaves up to 15 ft. long with numerous soft segments attached folded downwards (Λ) and usually arranged in groups; petioles not armed, but fibrous-fringed; main spathe longitudinally furrowed on the outside.

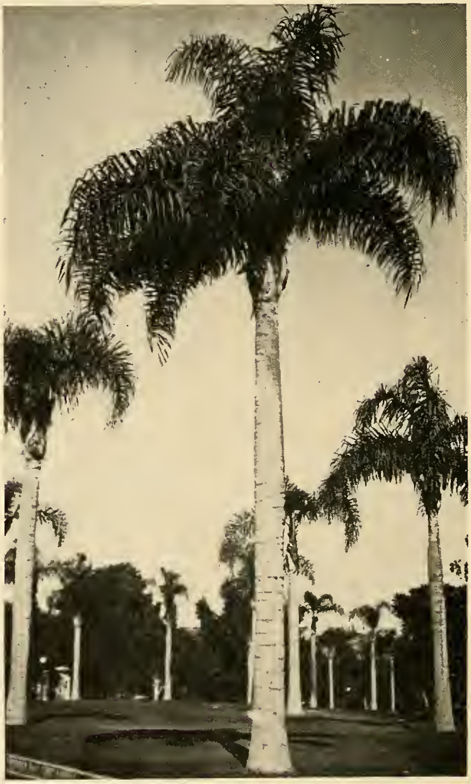
This genus is closely related to *Butia* and has, like it, been separated from the genus, *Cocos*. *Arecastrum* means "false *Areca*". (Arecas are slender, ring-trunked, feather-leaved palms of tropical Asia and Australia). *Arecastrum*, as now understood, includes but a single species, *A. romanzoffianum*, occurring in a number of named varieties or forms and showing adaptation to varied conditions. These extremely beautiful palms are widely distributed from central Brazil to Paraguay, Uruguay and northern Argentina. In certain parts of southern Brazil, the leaves furnish forage for cattle. Hybrids between *Arecastrum* and certain species of *Butia* are on record. I have seen one such hybrid, a very handsome and apparently hardy specimen, at the Royal Palm Nurseries at Oneca, Florida.[1]

A. Romanzoffianum (Chamisso) Becc. *(Cocos romanzoffiana, C. plumosa)*. Queen palm.

The specific name honors the Russian Count Nicholas Romanzoff, promoter of the famous Kotzebue exploration expedition around the world in the early nineteenth century. These palms, in one form or another, have long been known to gardners and nurserymen as *Cocos plumosa* and under the horticultural name of "*Cocos flexuosa*"—the latter name applies more specifically to a variety, *A. romanzoffianum australe*, apparently hardier than the species.

Queen palms are so beautiful with their graceful crown of feathery, deep green leaves and smooth, gray, ringed trunk, that every effort should be made to introduce them wherever they will grow (Fig. 34). They closely resemble the royal palms, which are too tropical for our climate, and are by many persons thought to be even more lovely. It is true that cultivating queen palms in southern Louisiana would involve some hazards, but the risk of losing them due to a spell of exceptionally cold weather would not be of great moment—they could easily be replaced with young potted plants of this species held in stock by Southern nurserymen for indoor decoration.

I know of only one tall queen palm (35 ft.) growing outdoors in Louisiana at the present time. It was set out by Mr. Charles J. Gille in his garden in Boothville (south of Buras) about 15 years ago. Its growth has been fairly rapid—the trunk occupies about 22 ft. of the total height and measures 1½ ft. in diameter at the base. Queen palms, once they are of fair size, are able to endure occasional cold periods without permanent injury, as is evidenced by the fact that Mr. Gille's palm withstood a temperature, unusual for the lower Delta area, of 4 degrees below freezing in January, 1935. For the last several



■ **Fig. 34. Queen palm (ARECASTRUM ROMANZOFFIANUM). Los Angeles, Calif.**

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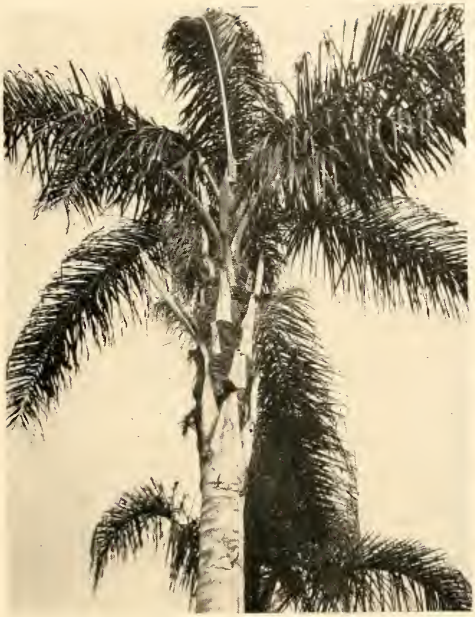
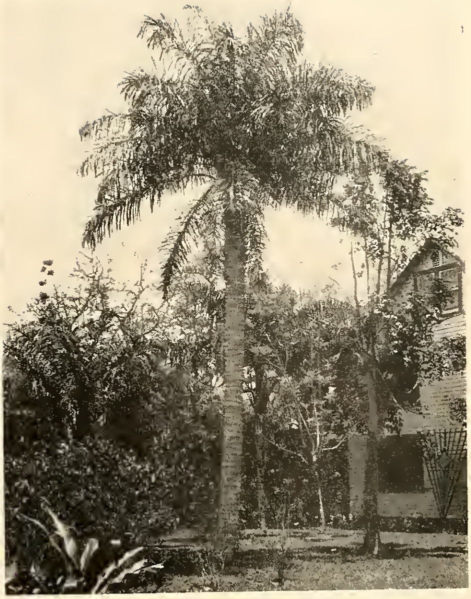
[1] See Bailey, L. H. Gentes Herbarum, vol. IV, fasc. I, illus. September, 1936. *Arecastrum* is discussed on pp. 1-14; hybrids with *Butia* on pp. 49-50.



■ Fig. 35. Totai palm (ACROCOMIA TOTAI). Photography by courtesy of Harold Mowry, Gainesville, Fla.



■ Fig. 36. Trunk detail (A. TOTAI). Short Street, New Orleans. This tree has been removed.

years, it has flowered and produced fruits in abundance. As previously mentioned (Part I), a tall queen palm grew in a protected situation in a New Orleans garden until fairly recently. Moreover, a thriving, medium-sized queen palm graces a lawn along the Gulf Coast Highway near Pass Christian, Mississippi. These examples certainly indicate that this beautiful species can be grown successfully in our milder regions.

Queen palms are rapid growers. They attain a trunk height of 40 ft. and average 1 ft. in diameter throughout except at the somewhat expanded base. The widely spaced leafscars are complete rings but of unequal width. The fibrous leafsheaths (*mattula*), which can be seen in the midst of the younger leaves, gradually break away from the sturdier petioles, leaving them with ragged-fringed margins. The petiole bases (*boots*) may be seen closely appressed to the trunk just under the crown (Fig. 35). The numerous, soft leaf segments, 20 to 30 inches long and one inch or more wide, are attached to the rachis in groups of 2, 3, or more, and stand out at various angles; each segment droops gracefully above its middle.

The general character of the spathes, spadices, flowers and fruits at once shows the close relationship of *Arecastrum* to *Butia* (discussed in Part IV). The queen palms differ mainly in that the grayish-green main spathes, 3½ ft. or more in length, are longitudinally furrowed or grooved and the "eyes" or germ pores of the nutlets are at the pointed, basal end (as in coconuts). The fleshy orange-yellow fruits are oblong or ovoid, over one inch in height, and of excellent flavor. The perianth is relatively small and does not cover the base of the fruit.

Acrocomia Martius. Acrocomia.

> Distinguishing features: Trunk faintly ringed and studded with sharp thorns or spines; petiole and rachis of leaves also spiny; leaf segments attached folded downwards (Λ) but soon flattened, rather evenly spaced, usually not stiff; main spathe with a dense covering of matted, short bristles on the outside, also with a scattering of spines of various lengths.

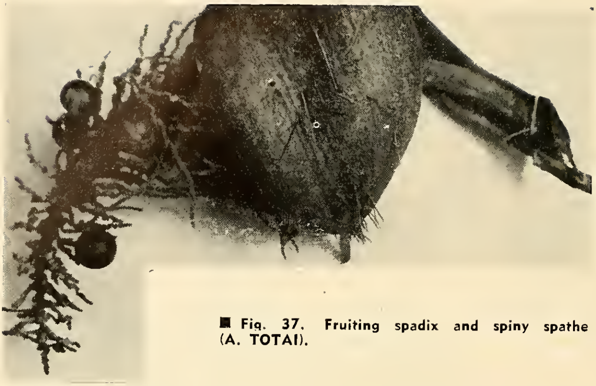
About 15 species of *Acrocomia* are native on plains and bordering woods, mainly at lower elevations, from Mexico to Bolivia, Paraguay, and Brazil and in the West Indies. *Acrocomia*, meaning "tuft of leaves at the top", refers to the compact crown of feathery leaves. The trunk is usually slightly, or in some species, (conspicuously, swollen near the middle. Four species are cultivated in the United States; of these, only one is suitable for warm-temperate regions.

Mature acrocomias are very attractive because of the graceful foliage, which, except for the spines, superficially resembles that of the queen palms (Fig. 36). Because of the spiny trunk they are usually not used in street planting but are interesting as garden specimens.

The usually round fruits vary in size with the species (from less than one inch to nearly two inches in diameter) and are sometimes edible. The outer "shell" encloses fibrous pulp. The single, round, very hard nutlet has the 3 "eyes" equally placed near the middle. The fruits, as well as the nutlets, of certain species yield oils used in soap-making and for other purposes.

Acrocomia Totai Martius. Totaï palm.

According to Martius, "totai" is the name commonly used for this palm by certain Indians of Bolivia. The totai palm is common almost throughout Paraguay and eastern Bolivia, on sandy plains and near woods. Of the described species of *Acrocomia*, this is the only one which extends into the South Temperate Zone. It is possible that the palms now grown in the United States under the name of *A. totai* are not typical, since they differ in certain particulars, especially the larger size of the fruits, from Martius' original description. Nevertheless, these specimens, in Florida and elsewhere, are remarkably similar and they are definitely more cold-resistant than the other cultivated acrocomias.



■ Fig. 37. Fruiting spadix and spiny spathe (A. TOTAI).

In 1905, Colonel Derby set out a totai palm on the Short Street approach to his Carrollton Avenue estate in New Orleans. Unfortunately, this tree was cut down in 1933. At that time, the crown was well above a two-story apartment building which had been erected near it. (Totai palms are said to attain 40 ft. in height). This tree flowered and fruited annually—the flowers appeared in late June or early July, the fruits ripened in November. Several smaller specimens on this same estate now have a trunk height of about 10 ft. and have recently come into bearing age.

The leaves of totai palms average 10 ft. in length. The crown appears dense because (1) the soft leaf segments (102 or more on each side of the rachis) are crowded, stand out at various angles, and also bend over gracefully; (2) the comparatively short petiole is appressed against the trunk for most of its length. Blackish spines are scattered all around the rachis, becoming smaller and fewer near the tip of the leaf.

The spiny petiole bases remain attached to the trunk for a long period. These boots resemble thin pieces of boarding, round-ridged down their center, which appear to be "nailed on" to the trunk by the shining, brownish black thorns. The thorns are intermingled with dark, bristly spines. Totai palms are much more attractive after they are old enough to show the characters of the "bark". The trunk is then of light grayish hue, indistinctly marked by leaf-scar rings of the same shade. Very formidable sharp thorns of various sizes, but not over 5 inches long, occur singly or in groups more or less directly above these rings (Fig. 37).

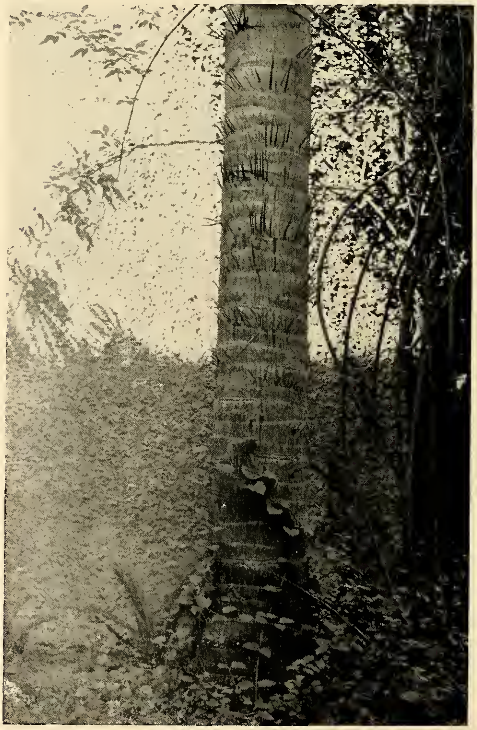
A fruiting spadix and spathe are illustrated in Fig. 38. The spadix is shorter (3 ft. or less in fruit), stouter, and more woody than in *Butia* and *Arecastrum*. The male and female flowers are borne in depressions of the spadix branches. The upper two-thirds or three-fourths of each branch, after the male flowers have fallen, is seen to be distinctly honeycombed; they resemble crinkly "tails" extending beyond the lower, more robust, fruit-bearing portion. The fruits are nearly globular, a little wider than high (averaging 1⅜ by 1⅛ inches), slightly flattened above and without a conic point at the top. While still green, they have a thin coating of loose golden fuzz which is easily wiped off. The thin, hard "shell" of the mature fruits is greenish buff-colored, somewhat speckled, and similar to the shell of some bird's egg. The nutlets measure three-fourths of an inch in diameter. The main spathe is densely covered on the outside with matted, reddish brown bristles or hairs. Many burnished black spines occur here and there, the majority being concentrated in the center and near the tip. The spathe ends in a 2½-inch, flattened beak.

Spiny-trunked palms are, with few exceptions, strictly tropical. The totai palm is one of the exceptions. Its introduction into any warm-temperate region where it will grow not only adds a new and interesting type to the landscape but a tall and very attractive palm as well.

* * *

"Sorry, sir, but I'm all out of wild ducks. I could let you have a fine end of ham."

"Don't kid me. How could I go home and say I shot an end of a ham?"

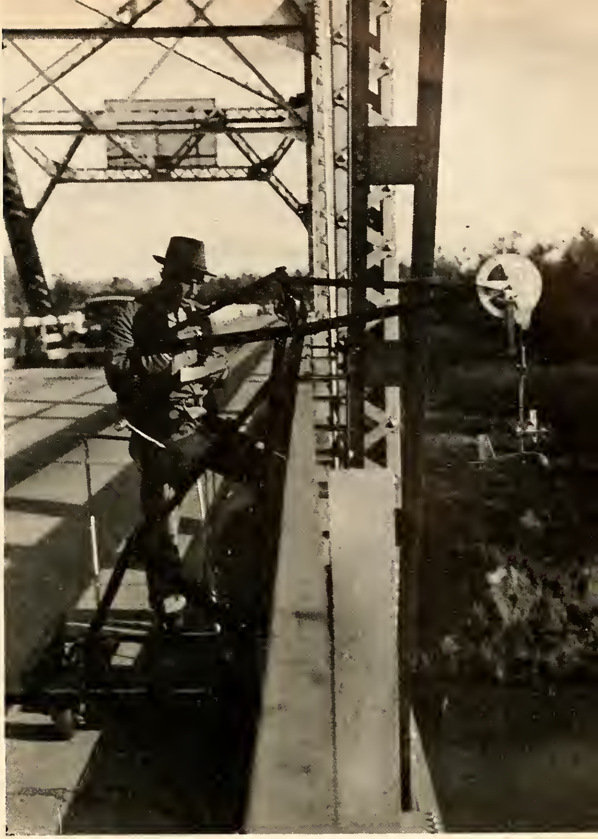


■ Fig. 38. California Washingtonia (W. FILIFERA). Metairie Cemetery, New Orleans.

Surface Water Investigations in Louisiana

By

A. E. Hulme and J. N. Garrett



Type A boom and reel for taking stream-flow measurements from bridges.

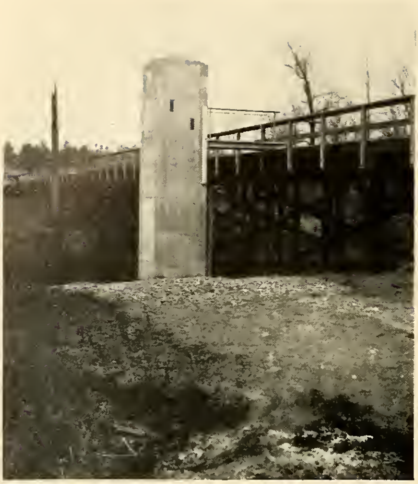
The Summer (1938) issue of this magazine carried a short article relative to the initiation of stream gaging in Louisiana through a cooperative agreement between Commissioner of Conservation, Wm. G. Rankin, and the Water Resources Branch of the United States Geological Survey. This cooperative program was arranged through D. H. Barber, District Engineer for the U. S. Geological Survey with District Office at Montgomery, Alabama. R. E. Marsh, Assistant Engineer, was transferred from the Tucson, Arizona office of the Survey to assume direct charge of the work in Louisiana. A sub-district office was established at Louisiana State University. A. E. Hulme and, later, J. N. Garrett, Junior Engineers with the State Department of Conservation, were assigned to assist in this stream-gaging work.

The actual work of collecting stream-flow records under this cooperative program was begun in August. As of December 31, ten gaging stations have been established and are now in active operation on the smaller streams in the State. Eight of these are equipped with wire-weight gages, read at least twice daily by local residents employed for this purpose, and two are reinforced concrete wells and houses in which automatic water-stage recorders are installed. Several more gaging stations will be established immediately after the first of January and it is expected that the total number in operation by July, 1939, will be in the neighborhood of twenty-five.

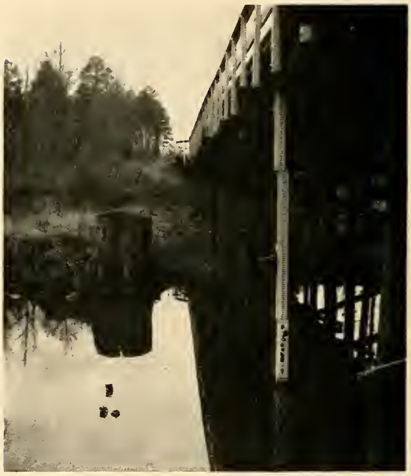
The two reinforced concrete structures, photographs of which appear herewith, were built with Public Works Administration funds. One or two more of these stations will be built with the remainder of these funds within a short time. In addition to this, a Works Progress Administration project now pending approval in Washington provides for the construction of six more of these reinforced concrete stations, along with several channel-clearing jobs. This project calls for the expenditure of about $23,000 for labor and materials, about 75% of which will be federal funds.

All gaging sites are selected with a view not only to present needs, but also to future needs for stream-flow data in the State. Some stations are established primarily to obtain data for such purposes as pollution study and control, flood control, study of irrigation possibilities, municipal supplies, etc., and some combine two or more of these many reasons for obtaining continuous and dependable records of stream flow. It is hoped that funds will eventually be made available to convert all our present wire-weight gage stations into first-class reinforced concrete wells and houses equipped with automatic water-stage recorders. A good start has been made in this direction through the successful efforts of the U. S. Geological Survey in obtaining the previously mentioned Public Works Administration funds for this work. The Survey also informs us that granting of the Works Progress Administration project seems reasonably certain. If all this works out as hoped for, nearly half of the gaging stations in Louisiana will be first-class, modernly-equipped stations by next July.

The stream-gaging equipment being purchased through the U. S. Geological Survey is of the latest and most improved type, and further improvements are constantly being made in the many District Offices and by the Division of Field



■ Recently completed reinforced concrete gage well and house on Bayou Bodcau near Sarepta, La. The floor of the stilling well is about 10 feet below the surface of the ground. Two 2-inch inlet pipes connect the well with the river and permit the water surface inside the well to maintain the same elevation as the water surface of the river.



■ Outside staff gage on Dugdemona River near Jonesboro. Readings on this gage are checked against readings on the gage inside the well to detesmine whether or not the inlet pipes to the well are partially or totally clogged. Flushing arrangemento are provided inside the well to flush out the pipes in case they do become clogged. (Note the damage inflicted by 22-caliber rifle bullets on the outside gage just above water surface.)

Equipment in Washington. All the latest developments and improvements in stream-gaging procedure and equipment are made immediately available to us through the Survey as our cooperating party. As the work is being carried on under the direction of Survey engineers, we have the advantage of the fifty years of experience of the Survey in this type of work.

Louisiana was a little later than some of the other States in starting this essential work, but at the rate we are going it will not be long before we will be as well equipped to carry on stream-flow investigations as any of the neighboring States where the work has been going on for several years.

■ Station on Dugdemona River near Jonesboro. Showing how the well is situated in respect to the stream itself.

■ Entrance to gage house. Door and door frame are of steel construction to protect recording instrument housed inside from small-bore riflemen. Gage wells are situated at highway bridges to permit of access during floods.

Plank boom for use principally in taking stream-flow measurements from boats. Can also be used for bridge measurements if desired.

Alfred, the Alligator

[Continued from Page 35]

usually about eight inches in length and is born from an egg only slightly larger than that of a chicken. Average growth is approximately one foot a year for the first seven years of life, and one, two or three inches a year thereafter; maturity is reached usually in the seventh year, possibly sooner, and breeding begins at this time. Mrs. Alfred will be blessed with a new brood each and every year after the sixth or seventh, that is, under normal conditions, and each brood will consist on the average of between thirty and fifty young.

At this rate of growth it is seen that Mr. Alfred, being some twelve feet long, is probably only a little less than 100 years of age.

Many tales have been related by knowing hunters, fishermen and trappers of the alligator's cunning, his ability to snare at will the fastest creatures of the swamps and marshes, mammals, fish, and, it is even claimed, birds, quite often by swimming under water to the spot where some careless water fowl is paddling on the surface. One story is that of the gator in search of a more tasty morsel than the usual crab, fish or turtle, lying patiently on the edge of some stream with jaws agape and mouth full of shrimp or other water life, until some hungry blackbird, spotting this tempting offering and ignorant of the wiles of the tempter, who will remain unmoving for hours on end, will alight with the intention of consuming the food, only to be made a meal of himself when the gator's teeth come together with a snap.

Some will naturally wonder what method is used in capturing alive the reptiles, who are so timid in the wild state that they will immediately run at the first sight of man, and who, when cornered, will fight with terrific fury. The hunting is done mostly by night with the aid of an oil burner lamp, or flashlight, the nest, of course, having been already spotted during the day. This is not difficult, considering the fact that the alligators construct a nest in the form of a mound which is usually quite prominent on the edge of marsh streams and bayous where underbrush, trees and tall grass are scarce. Once located, the nest is reached by boat or afoot and the gator lured therefrom by an imitating call, and probably more so by his own curiosity. As is the failing of many wild creatures, once the light has been thrown into his eyes the gator will be blinded and remain stationary, allowing the hunters to grab him by the snout and apply ropes to his body, always being careful of a wickedly thrashing tail which can easily break a man's leg.

And so we leave Alfred in the peace and serenity of his farm home, blissfully ignorant of the fact that he is probably much better off than others of his kind, many of whom are doomed to a sudden death by a rifle or shotgun in the hands of some hunter, muskrat trapper, or anyone, for that matter, who is carrying a gun. For unfailingly, an alligator offers a tempting target to marksmen, particularly some trapper whose traps have been robbed of muskrats, minks, or other valuable fur-bearing animals, and to those who will commercialize on the hide obtained.

Despite their fast rate of production, it will not be long before the alligator is extinct. This prediction is readily made when it is seen how unbelievably their numbers have decreased within the past thirty or forty years. They are indeed becoming rare sights even in the most secluded sections of our coastal marshes and swamps.

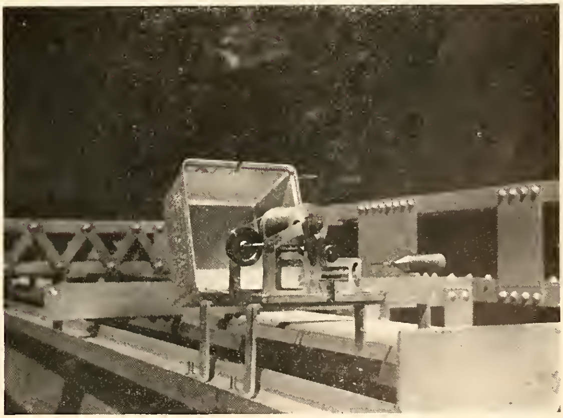
◆

Frog Fakes

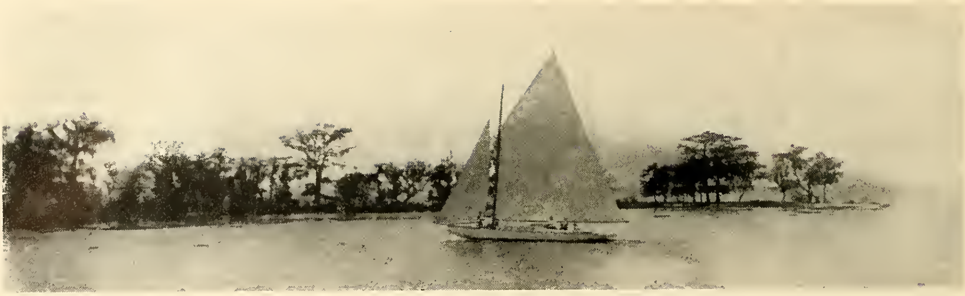
[Continued from Page 26]

in bamboo baskets and maggots develop and drop down out of these baskets to be devoured by the frogs. Later they are fed small fish.

"There are two chief difficulties in artificial frog culture. In the first place, there are many diseases which attack them in propagating pens and ponds, then there is the ever-present problem of food. Young frogs eat plant material while older frogs need live food as they will eat nothing which does not move. In addition to this it takes around three years to grow a frog of marketable size. From the above it may be concluded that the outlook for the frog farmer in the United States is anything but bright."



Wire-weight gage installed on highway bridge. Weight is lowered until the bottom just touches the water surface. Gage height is read on indicator mounted on far end of reel.



■ The mouth of Tchefuncte River in Lake Pontchartrain where Atlantic Sturgeons and Rockfish are occasionally recorded in the spring of the year. The Sturgeon is not a game fish and is taken only in seines or on snag lines.

WHERE TO FISH IN LOUISIANA

•

Atlantic Fishes in Louisiana Waters

•

By
Percy Viosca, Jr.

Does a fish ever get lost? So it would seem, because migratory fishes, which habitually ascend North Atlantic rivers to spawn, are reported occasionally in streams and estuaries along the northern coast of the Gulf of Mexico. Unfortunately our knowledge of them is fragmentary because specimens seldom reach the hands of people who can identify them.

THE ATLANTIC STURGEON

The largest anadromous fish reported from the Gulf is the common Atlantic Sturgeon, *Acipenser oxyrhynchus*. It has been commonly believed, even by scientists, that the sturgeons occasionally found in the coastal waters of Louisiana are stray specimens of the lake sturgeon, *Acipenser rubicundus*, which have dropped down from the upper Mississippi River.

The first sturgeon that came to my attention was caught in a hoop net in the Amite River over 20 years ago. This was never definitely identified. More recently, May 30, 1937, a specimen about eight feet long and weighing approximately 250 pounds came to my attention. This was caught in the Pearl River near Pearlington, Mississippi, by a 14 year old boy, Joe Montz. This was butchered at the French Market in New Orleans and the skin destroyed before I could see it. On the basis of its size, one would suspect it to be the Atlantic sturgeon and not the lake sturgeon. Fortunately I was able to locate the head, which weighed just under 50 pounds, and this was preserved and later sent to the American Museum. There it was carefully checked by J. C. Nichols and C. M. Breder, Jr., and definitely shown to be the Atlantic sturgeon.

Checking the files of New Orleans newspapers, I located three articles in which are reports of five other specimens, with illustrations of four fish. Abstracts of these reports are submitted below.

A 503 pound, nine foot sturgeon was caught at Cow Horn reef near the mouth of the Mississippi, September 18, 1936 by Arthur Dahbauer of New Orleans, after a five hour struggle. N. O. Item, Sept. 20, 1936.

Two sturgeons, identified as common sturgeons by James Gowanloch, Conservation Department biologist. One was caught in a cast net by J. M. De Traites and Theodore Estorge, near Waveland, Mississippi. The other caught near the mouth of the Mississippi River. Illustration shows two fish, each not over three feet in length. N. O. Times-Picayune, April 3, 1933.

Capt. Fred Vanderbrook on fishing launch **F. & J.**, in waters near Grand Isle, caught a large sturgeon in seine. It was eight feet, two inches in length, weight 380 lbs. Mr. N. Clesi who displayed the fish in his market says he had one seven feet, four inches, 10 years before and sold it to the Louisiana State Museum. Times-Picayune, Sept, 28, 1923.

I will not vouch for the weights and measurements given, but the two larger fish cannot be considered anything but the common Atlantic sturgeon. James Gowanloch, Louisiana Conservation Department biologist who examined two small specimens, assigned these to this same species. All were caught in salt water, contributing further to the evidence that they are undoubtedly Atlantic sturgeons. The sturgeon referred to by Mr. Clesi was found to be still reposing in the State Museum as a stuffed specimen. Its length is six feet five inches, 11 inches smaller than reported. Except for minor variations, it has the diagnostic characters of the common Atlantic sturgeon, and is definitely neither the lake sturgeon nor the short nosed sturgeon.

Another large Atlantic sturgeon, captured in Louisiana waters near the mouth of the Mississippi River, is used as an illustration by James N. Gowanloch in *Fishes and Fishing in Louisiana.*[1]

I have also learned that Ory Nazier, on successive days in March 1937, caught two small sturgeons on snag lines set in Lake Pontchartrain within 300 yards of the mouth of the Tchefuncte River. The smaller was two feet six inches, and the larger, two feet eleven inches. The latter specimen was mounted by Bert Scarbrock of Madisonville who submitted the above information and loaned me the specimen for study. This specimen, also, is definitely an Atlantic sturgeon. Berry Todd of Lacombe, La., states that he was a member of a seine crew which caught a large sturgeon in March 1926 near the mouth of Bayou Lacombe in Lake Pontchartrain. This specimen weighed about 400 lbs. and measured over 7 ft. in length. Love Cousins, who seines regularly in this vicinity, states that he caught a smaller one during the spring of 1937, and that he has caught a few others in other years.

The smallest specimen of record here was taken in Pass Manchac near Lake Pontchartrain in the spring of 1936 by

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[1] Bull. 23, Dept. of Conservation of La. 1933.

Henry Barbier. Its weight, preserved in formaldehyde, is 15½ oz. and its length 20½ inches.

Inquiry at the New Orleans French Market revealed the following additional information: That L. Cheramie of Buras caught a large sea sturgeon in a shrimp trawl in salt water near the mouth of the Mississippi during April 1937. This specimen, which was sold at the market, weighed in at 503 lbs. and was 9 ft. four inches long. Motto Taliasie of Buras caught a smaller one, about 300 lbs., even more recently, September 1937, with a shrimp trawl in the same general vicinity. By comparing notes of various wholesale and retail fish dealers, as well as the fishermen interviewed by me, I was rather startled to learn that between 25 and 30 sturgeons were caught in coastal waters near New Orleans during 1937. Most of them were caught in the Gulf near the mouth of the Mississippi, and the remainder, in or near streams and passes around Lake Pontchartrain. All specimens definitely identified were the common Atlantic sea sturgeon, and there is no reason to believe that any of them were the lake sturgeon or the short-nosed sturgeon.

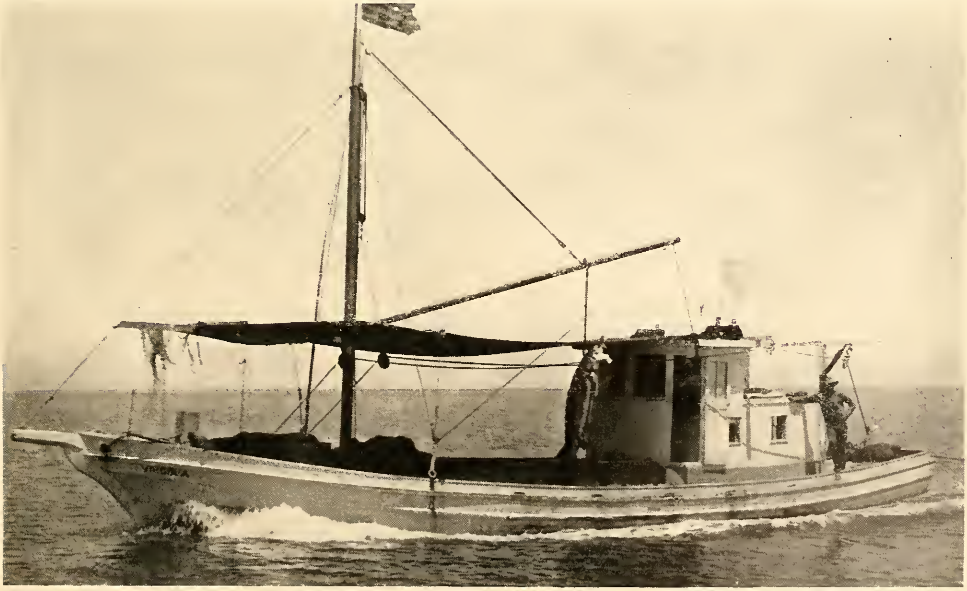
The Atlantic Striped Bass

Reports of the Atlantic striped bass, or rockfish, *Roccus saxatilis*, in streams and estuaries along the Gulf coast, are more frequent than those of the sturgeon, but seldom do these get recorded, even in the newspapers. I was able to locate two newspaper reports, both of these in a single article.

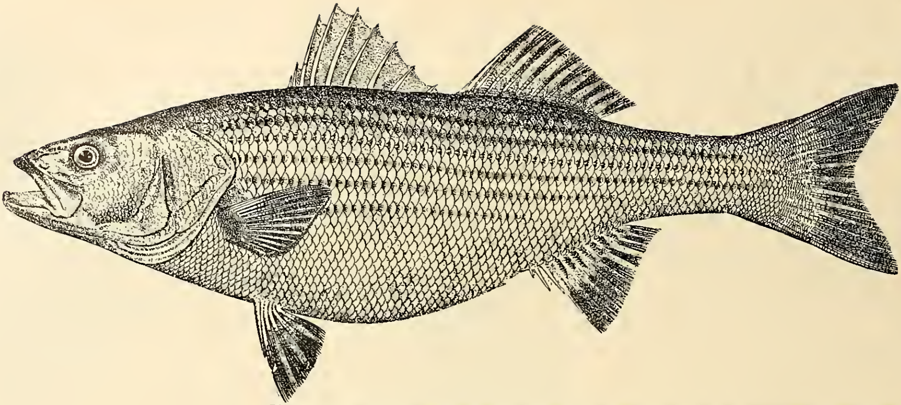
■ **The Bogue Falaya River at Covington. In the month of May, Rockfish begin feeding at this point early in the morning and work their way toward the mouth of the River.**

> A rockfish or Atlantic striped bass was caught in Lake Pontchartrain, between North Shore and Bayou Liberty, by Marcel James, 1611 Prytania St. Weight 11 lbs.; length 33 inches. One of approximately the same size caught a few days earlier in Tchefuncte River. Times-Picayune, March 28/33.

The writer has seen small schools of the Atlantic striped bass striking in the Tchefuncte River and its major tributary, the Bogue Falaya, and a plaster cast of an eight pound specimen caught in this tributary is on display in the Conservation Department Museum. The usual specimens taken in Louisiana are about this



■ **A Giant Atlantic Sturgeon on the Trawl Boat Virginia. This giant sturgeon measured 9 feet, 8 inches and was taken in the Gulf near Southwest Pass in a shrimp trawl by Capt. Alver Hudson, now President of the Gulf Coast Fishermen's and Trappers' Association.**



The Atlantic Striped Bass or Rockfish is the only truly anadromous game fish taken in Louisiana waters. Although rare along the Gulf Coast, rockfish are occasionally taken by Louisiana Anglers during the Spring of the year when they appear in estuaries and coastwise streams, presumably for the purpose of spawning.

size, but I saw one striking in the Tchefuncte which appeared to be about 20 pounds.

The favorite fishing place for this species in Louisiana is in the Bogue Falaya River near the town limits of Covington. Throughout the spring and early summer, small schools ascend the river daily as far as the highway bridge and at the first peek of dawn begin feeding upon schools of shiners, *Signalosa atchafalayae*. As the rockfish attack, the shiners move down the river. The rockfish follow their prey downstream for about half an hour after which, having satisfied their appetites, they stop feeding. In order to catch a rockfish, one must anchor in the middle of the river and wait until the school passes. The angler should be armed with a casting rod and a floating plug resembling a crippled shiner. When a fish strikes near the boat, the plug should be cast at the spot. Even the expert angler is lucky, however, if he obtains a strike.

Just how far the striped bass ascends streams in Louisiana is not known. Bert Scarbrock who used to live at Folsom, near the head waters of the Tchefuncte, says that he has seen small schools of three or four specimens striking in the Tchefuncte at this point. The river here is virtually a large creek with deep holes alternating with bars of sand and gravel. Fishing in one of these holes during the spring of 1933, two miles north of the bridge near Folsom, he landed a striped bass weighing 12¾ lbs. I recall a statement made by game warden Ed. Strader of Ponchatoula, several years ago, that some years previous he caught several large striped bass stranded in an old river bed pond after an overflow of the Tangipahoa River.

The largest striped bass of record in Louisiana weighed 16 lbs., 14 oz., and was caught in Lake Pontchartrain at North Shore, on March 8, 1936, by Raymond Planchard. This specimen is in the writer's possession, preserved in formaldehyde, and a plaster cast of it is owned by Mr. Planchard.

Verbal reports undoubtedly referring to the Atlantic striped bass have also reached the writer from the Amite and Pearl Rivers in Louisiana, and from the Jordan River in Mississippi. All of the above reports and records, including one caught in a seine in Lake Borgne, are from waters east of the Mississippi River.

The Atlantic Shad

Another anadromous Atlantic fish found near New Orleans, and one about which very little is known, is the shad, *Alosa sapidissima*. Although occasionally reported in the spring by fish dealers in the French Market, the only specimens studied by the writer were samples purchased at this market on March 4, 1937. These, which averaged a little over two lbs. each, were caught in seines in Lake Borgne, an estuarian lake, a day or two earlier.

◆

Fighting Forest Fires

[Continued from Page 37]

The hazardous fire season of 1938 is rapidly coming to an end, due to rains and cold weather. Very few fires will occur during December and January. About the middle of February to March first, when the warm Spring winds dry the forest cover, forest fires again will be prevalent. It is hoped that readers of the Conservation Review will make it a point to observe the regulations of the Forestry Division and cooperate with the Department of Conservation in helping to reduce the forest fire loss, not only for the period mentioned but for the continuous future.

Forest fires destroy the assets of the land; they destroy raw materials for the forest products industry; and naturally the industrial worker suffers from the lack of material which creates lack of employment. When a forest fire takes place everyone loses. With intense forest fire protection, the State will enjoy the benefits of a continuous forest products industry, the development and increase of the cattle industry, and create a constant domicile for wild life, thereby permitting the citizens of the State to enjoy the sport of hunting and fishing.

◆

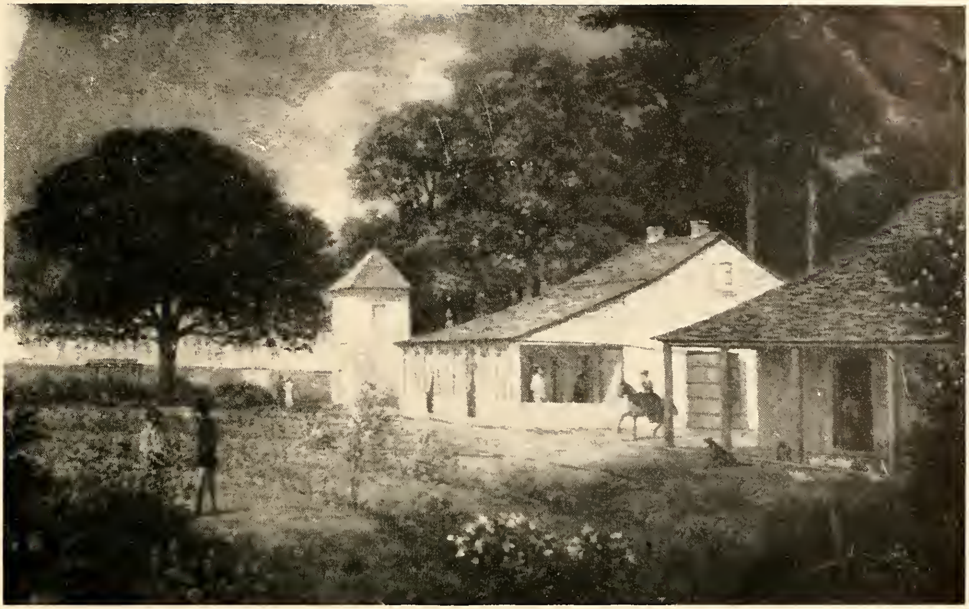
SEUBERT STRESSES NEED OF CONSERVATION

Edward G. Seubert, president of Standard Oil Co. of Indiana, commenting on the outlook for the new year, said:

"Every year brings new problems for the oil industry. Although 1938 production has run somewhat behind the preceding year's, a new complication has arisen out of the increase in production in states where control is lacking or lax.

"For the first time in several years the oil industry has suffered from a decline in consumption of its products. Turmoil has resulted in marketing, because petroleum marketers are accustomed to a larger demand every year and do not know how to adjust their operations to lower sales volume.

"There is no telling what 1939 holds for the petroleum industry. Some statistics, such as increasing rate of consumption of gasoline per vehicle, point to a possible increase in demand. Further improvement in business would mean better demand for industrial fuels and lubricants. But something more than increased consumption is needed for stability. States where production is unrestricted will have to practice conservation and control."



■ The picture shown above is a photograph of an oil painting owned by Mr. George William Nott of New Orleans and reproduced through his courtesy. According to Mr. Nott this picture was painted by Bv't Brig. Gen. Régis de Trobriand (1816-1897). Gen. Trobriand served in the Federal Army during the War Between The States. He was sent to Louisiana in command of the troops guarding the State House during Governor Kellog's regime and on January 4, 1875, forcibly expelled several members of the Legislature. For further details see *The Life and Memoirs of Comte Regis de Trobriand* by his daughter Marie Caroline Post (Pub. 1910). After his return from the army he made New Orleans his winter home, keeping much to himself. In the book mentioned above, page 464, we find the following 'For one household alone in New Orleans he made an exception. The Family of Mr. George William Nott was as the General's own. For twenty years he received from old and young in that charming circle the affectionate devotion that his daughters alone could have given him, in sickness he had their care, in health and joy or trouble their warm sympathy."

Mr. Nott is of the opinion that the home shown in the painting is that of Bernard Marigny at Fontainebleau. The Nott family purchased the plantation in 1881.

The Family of Marigny de Mandeville and The Fontainebleau Plantation 1700-1938[1]

A BRIEF CHRONOLOGY OF THE TCHEFUNCTE PARK AREA

By Clarence L. Johnson*

PART II[2]

1803. The following is quoted from *Bernard Marigny à ses Concitoyens*, 1.

> In 1803, Laussat, the French commissioner, being empowered to take possession of Louisiana from the Spanish authorities, to transfer it to the United States; having no regular troops, raised a company formed of French citizens. Daniel Clark also raised a company of Americans, a class of the population under great favor with the Spanish government. Messrs. Gabriel Villere and myself, were selected by Laussat, as his aids de camp, and we remained in that capacity to the day that Louisiana was transferred by Laussat, to W. C. Claiborne and James Wilkinson, commissioners on the part of the United States Government, (20th December, 1803).
>
> Some days after, I became a member of the U. S. Army, as volunteer aid to Gen. Wilkinson; I served until 1808. At that period, being unabled to follow the General to Washing-

[Continued on Page 49]

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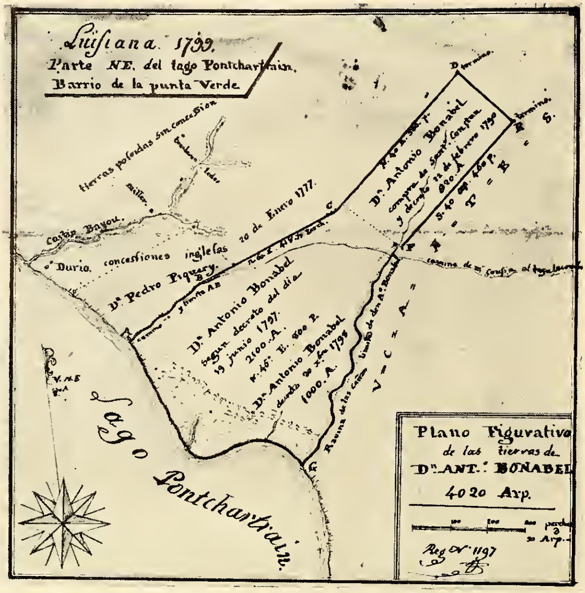
* Senior Foreman Historian, National Park Service, Tchefuncte State Park.


Luisiana. 1799.
Parte NE. del lago Pontchartrain.
Barrio de la punta Verde
tierras pobladas sin concession
Miller.
Castin Bayou.
Durio.
concessiones inglesas
20 de Enero 1777.
Dn. Pedro Piquery.
Dn. Antonio Bonabel segun decreto del dia 19 junio 1797. 2100. A.
Dn. Antonio Bonabel decreto 20 Xbre 1798 1000. A.
Dn. Antonio Bonabel compra de Sent. Constan y decreto 22 de febrero 1790 920. A
A
B
C
D
E
F
G
V = C = A =
T = E
Rauina de las Cañas
Lago Pontchartrain.
Plano Figurativo de las tierras de Dn. ANT.o BONABEL
4020 Arp.
perchs
Reg. No. 1197

■ **The map reproduced above shows the grant of 4,020 arpents made by Gouvernor de Lemos to Antonio Bonnabel on January 25, 1799 (See Part I, Page 57, Col. 1). This tract now is Section 42 of T. 8S., R. 12E., Greensburg District, Louisiana and Section 54 of T. 8S., R. 11E. Compare with map on opposite page.**

This map is reproduced through the courtesy of the State Land Office, Baton Rouge.

A TRANSLATION OF THE BONNABEL GRANT:

I, Don Carlos Trudeau, Royal and private surveyor of the Province of Louisiana, etc.

Certify: That having surveyed in favor and in the presence of Antonio Bonabel, a merchant of this city, and with the assistance of the owner of the adjoining land, a certain land measuring four thousand and twenty arpents (old French measure of an acre each arpent) of surface, measured with the perch (rod) of the city of Paris, consisting of eighteen lengths of the King's foot, a land measure used in this colony, said land being situated on the northeast of Lake Pontchartrain, known as the "Punta Verde" suburb, about one and a half miles southeast of Bayou Castain, bound on the southwestern side by the shores of Lake Pontchartrain; on the northwestern side by the lands of Pedro Piquery, and on the other sides by vacant lands belonging to His Majesty. This survey was made in compliance with the following three decrees: The first, dated February 22, 1790; the second, dated June 2, 1797, and the third and last, dated December 20 of last year (1798). Said lands are joined together according to the attached plan and the boundaries are fixed according to the red lines (A, B, C, D, E, F and G,) on said plan, to wit: Line A to B shows the road that separates and fixes the common limits between said lands and the lands of Pedro Piquery; said road has been agreed upon by said interested parties as the boundary line between both properties. Point A, beginning from the shores of Lake Pontchartrain on the western side of the road, has been marked with a sharp-pointed dividing post of cypress, five feet eight inches high by seven by eight inches square, with the bottom end buried three feet in the ground and four squares of bricks around its base. On point B, was placed a similar landmark, measuring seven feet high by seven inches square, with its bottom end buried three feet in the ground and two squares of bricks around its base. From point B to point C, a distance of forty-one arpents eight and a half perchs, the line of demarcation was directed to the north, seventy degrees east up to point C on which it was placed another similiar landmark seven feet high by six inches square with its bottom end buried three feet in the ground and four squares of bricks around its base. From point C the line of demarcation was directed to the north, forty degrees east up to point D, a distance of fifty arpents; on said point D was placed another similiar landmark five and a half feet high by seven and a half by four and a half inches square with its bottom end buried three feet in the ground and four squares of bricks around its base. The line D to E measures twenty arpents long directed to the south, fifty degrees east, indicating the limits of the depth of said lands, and on said point E was placed another similar landmark five and a half feet high by five and a half inches square with the bottom end buried three feet in the ground as the others. The line from E to F measures forty-six arpents directed to the south, forty degrees up to and parallel with line C to D; on point F was placed another similar landmark five and a half feet high by four inches square with its bottom end buried three feet in the ground etc. From point F, fifteen fathoms on the other side of the "Ravine de las Canas", another similar landmark was placed for the purpose of showing that said ravine is to serve as the natural boundary of said lands from point F to point G where said ravine flows into Lake Pontchartrain, all of which is clearly shown in the attached plan. In witness whereof I issue the foregoing description with the attached explanatory plan, on this fifteenth day of January of the year one thousand seven hundred and ninety-nine.

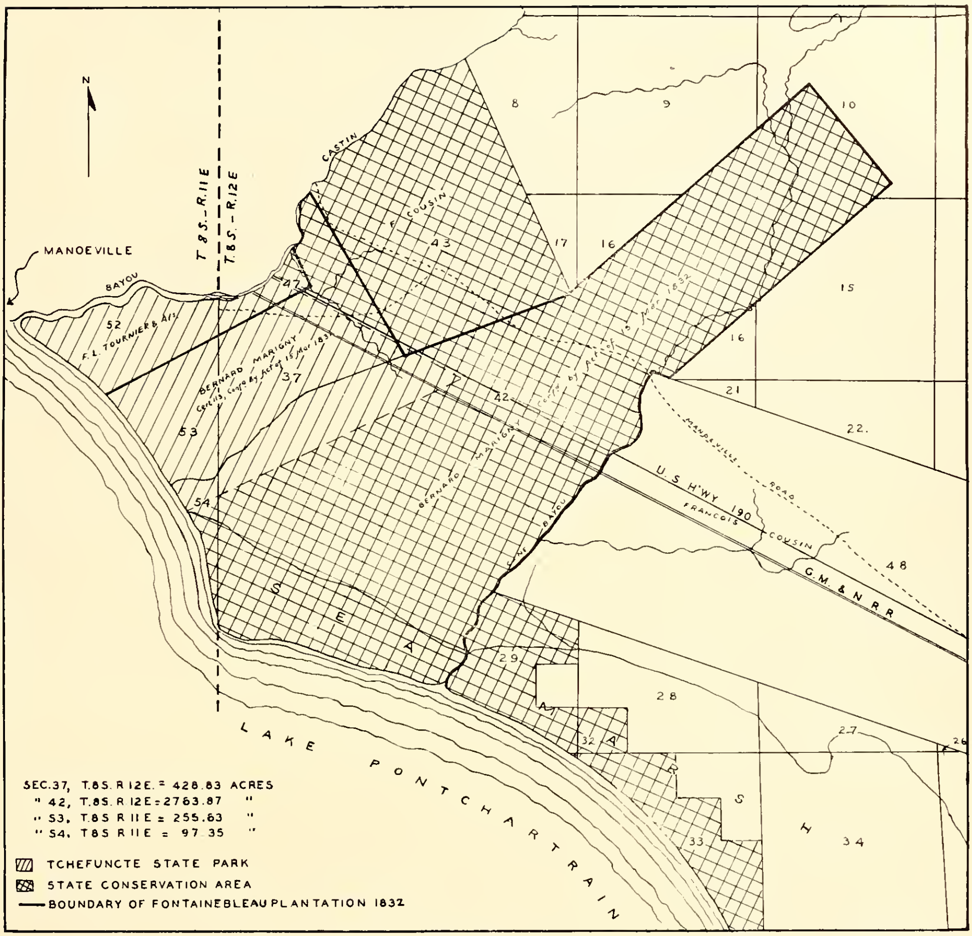
(Signed)

CARLOS TRUDEAU,
Surveyor.

Don Manuel Gayoso de Lemos, Brigadier of the Royal Armies, Governor-General and Royal Vice-Patron of the Provinces of Louisiana and Occidental Florida and Inspector of the Veteran Troops and Militia of same, etc.

Having examined the foregoing explanatory plan and the description of the survey made by the surveyor of this Province, Don Carlos Trudeau, of the lands of Don Antonio Bonabel which measure four thousand twenty arpents of surface and are situated on the northeastern part of Lake Pontchartrain at a place known as "Punta Verde", about one mile and a half southeast of Bayou Castain, bound on the southwest by the shores of Lake Pontchartrain; on the northwest by the lands of Pedro Piquery and on the other sides by vacant lands of the dominion of His Majesty, as shown by the attached explanatory plan, acknowledging said survey to have been made in accordance with the survey regulations and with the permission of the said neighbors who have not suffered nor claimed any damages, but on the contrary have given their consent as evidenced by their presence in the making of said survey and approval of same; therefore, by the power granted me by

[Continued on Page 51]


N
T 8 S. – R. 11 E
T. 8 S. – R. 12 E
MANOEVILLE
BAYOU
52
F. L. TOURNIER & ALS
BERNARD MARIGNY
CERT. 113, CONFD BY ACT OF 15 MAR 1832
37
53
54
47
43
F. COUSIN
CASTIN
42
BERNARD MARIGNY CONFD BY ACT OF 15 MAR 1832
BERNARD MARIGNY
CANE BAYOU
8
9
10
17
16
15
16
21
22.
MANDEVILLE ROAD
U. S. H'WY 190
FRANCOIS COUSIN
G. M. & N. R.R.
48
29
28
27
26
32
33
34
S E A M A R S H
L A K E P O N T C H A R T R A I N
SEC. 37, T. 8 S. R 12 E. = 428.83 ACRES
" 42, T. 8 S. R 12 E = 2763.87 "
" 53, T. 8 S R 11 E = 255.63 "
" 54, T 8 S R 11 E = 97.35 "
▨ TCHEFUNCTE STATE PARK
▩ STATE CONSERVATION AREA
— BOUNDARY OF FONTAINEBLEAU PLANTATION 1832

J LALA.

■ **The map reproduced above is based on original surveys in the State Land Office at Baton Rouge. Fontainebleau Plantation originally included Section 37 and 42 in T. 8S., R. 12E. and Sections 53 and 54 in T. 8S., R. 11E. of The Greensburg District of Louisiana and contained 3,545.68 acres. U. S. Highway 190 and The G. M. & N. R.R. are superimposed for orientation.**

[Continued from Page 47]

> ton City, I resigned my commission. My first wife, Mary Jones, was then on her death bed; she died, and with her my hopes of a brilliant military career vanished.

Laussat in his memoirs says on March 26, 1803.[3]

> I then proceeded to the house that had been reserved for me, that of Bernard de Marigny, near the eastern gate of the city. The governor, escorted by his officers, came shortly later to pay me a visit.

On April 10-15 he describes Marigny's home.[4]

> As it is necessary to cross the least inhabited quarter of town to reach our house, people generally leave around ten o'clock and after that hour nobody ever comes. Putting this aside, or even counting this drawback, our house is one most agreeable. The river shows itself here to the best advantage: we are situated at a point in its crescent that dominates the port. One hundred ships, some of France, some of Spain, but mostly of Anglo-Americans, stretch out in the distance as would a forest afloat and offer a perspective worthy of the most active settlement of the world.
>
> We usually go to bed at ten, sometimes at nine, so as to find refuge from the attacks of mosquitoes and gnats, which at sundown take full possession of the air hereabout; they fly through the smallest apertures, swarm around all the lights, prick us to the quick with their stings, cover both our arms and hands with some smarting pimples, which if you least scratch them they become just as so many sores. It is even impossible to read or to write; even a drawing room, in spite of the diversions usually provided there by a numerous assembly, becomes a place of torture; the passion for gambling and the toughness of one's skin, secured from long habit, alone can render these bearable at all.

> Our habitat being near the gates, and thirty paces remote from the rampart, is always being called "out of town" (*hors de ville*). The sun or the rain, the dust or the mud, are often obstacles one has to overcome. A carriage can be used, of course, but there are some who have none, and for those who have one it often seems quite some trouble to go through to only travel such a short distance. The net result of all this, is that unless we issue special invitations few people come to see us, especially after eight or nine in the evening. We, nevertheless, appreciate the advantage of living in such a comfortable house, one charmingly situated, bathed often with cool breezes, if such are anywhere to be had, and when returning to it we always experience a new feeling of pleasure at out being once more under such a roof. My library is my greatest pleasure. I have there under my very eyes, an entire collection of books, even as to my favorite ones.

1804. Bernard Xavier de Marigny de Mandeville married Mary Ann Jones, Daughter of Evan Jones, of New York City[5] and Marie Verret of New Orleans.[6] The marriage contract was executed before Peter Pedesclaux, Notary in New Orleans on May 19 at the home of the bride-elect's father. Bernard was represented by Solomon Prevost, who was his guardian. Bernard's wealth had "a real and affective value of One Hundred Thousand Dollars specie".[7] This wealth consisted of, (1) "a plantation situated near the Fort of St. Charles, and having seven arpents front on the river by eighty arpents in depth and adjoining on one side the ancient fortification of this city . . . . . the said plantation being valued in the sum of Eighty Thousand Dollars specie."[8] (2) "Twenty-eight heads of slaves [names follow] all valued in the sum of Fifteen Thousand Dollars Specie."[9] (3) "Five Thousand Dollars specie due him by the succession of . . . . . his father."[10]

1805. On April 19, The Louisiana Territorial Legislature passed an act entitled "Enablement of Bernard Marigny" authorizing Bernard Marigny "Jointly with his guardian" to "sell and lease all or any" of the lots to be laid out in his plantation adjoining the city. All conveyances to be binding "as if the same had been made by a person of full age."[11] As a result of this act, part of the plantation which later became the Faubourg Marigny, was subdivided. Interesting indeed, were the names of the streets of the Faubourg Marigny, many of which are still retained. They include avenue Champs Elysees, rue de l'Amour, rue des Bons-Enfants, rue Craps, rue des Grandes Hommes.

1806. Prosper Francois de Marigny de Mandeville son of Bernard Marigny, born at New Orleans, on March 6.[12]

On June 7, the Territorial Legislature, emancipated Bernard Marigny and in an Act stated that Bernard Marigny "be, and is hereby authorized from this day forward to administer and take care of his estate by himself, and to do all and singular the civil acts which are and may be done by all persons who have arrived at the age fixed by law for attaining the rights of majority."[13]

1807. Gustave Adolphe de Marigny de Mandeville, son of Bernard Marigny born at New Orleans on June 15.[14]

1808. Mary Anne Jones, wife of Bernard Marigny died in Philadelphia on June 4.[15] The body was later brought to New Orleans and buried there on August 6.[16]

Bernard Marigny advertises for sale "a superb plantation . . . . . known by the name of the Plantation Dupard . . . . situated at about five leagues from this city and on the opposite side of the river above the city, and in the environs of the Cannes Brulees." This plantation belonged "to the community which existed between . . . . .Bernard Marigny and his . . . . . deceased wife."[17]

1809. Bernard Marigny married again. His bride was Anna Mathilde Morales,[18] the daughter of Don Juan Ventura Morales.[19] Morales was formerly Intendant and Contador, for Louisiana at New Orleans from April, 1796, to the time of The Cession to France by Spain, except for a few months. At this time he held the same office at Pensacola and later in Puerto Rico.[20] The marriage contract was executed on March 21, before Francisco Maximilien de Maxent, commandant of The Province of West Florida and "performing therein the duties of Notary," at Pensacola.[21]

In September, Bernard was elected one of the six representatives of The County of Orleans in The Territorial Legislature.[22] This was the beginning of twenty-six years of service in the Territorial and State Legislature.[23]

Bernard Marigny advertised 650 lots for sale in the Faubourg Marigny. They could be paid for over a period of 15 years with interest at 8%. Many of the lots in the Faubourg Marigny were later seized and sold by the Sheriff for non-payment of notes.[25]

1810. Antoine Jacques de Marigny de Mandeville (always referred to as "Mandeville") son of Bernard and Anne Mathilde Marigny born in New Orleans.[26]

1811. Bernard Marigny elected to the Constitutional Convention of The Territory of Orleans. This convention was to prepare a constitution for the New State of Louisiana.[27] The convention sat in New Orleans from November 4, 1811, to January 28, 1812. Marigny at this time also a member of the Territorial Legislature from the County of Orleans[28] and a member of The City Council of New Orleans.[29]

1812. Louisiana Admitted to the Union by Act of Congress of April 8, 1812, which went into effect the 30th of April of the same year, with the following boundaries.[30]

> Beginning at the mouth of the river Sabine; thence by a line to be drawn along the middle of the said river, including all islands to the thirty-second degree of latitude; thence due north, to the northernmost part of the thirty-third degree of north latitude; thence along the said parallel of latitude, to the river Mississippi; thence down the said river to the river Iberville; and from thence, along the middle of the said river and Lakes Maurepas and Pontchartrain (sic), to the Gulph of Mexico; thence bounded by the said gulph to the beginning; including all islands within three leagues of the coast . . . . .

The territory between the Mississippi River and Pearl River and bounded on the North by the Mississippi Territory, which is still known as "the Florida Parishes" was added to the state by an Act of Congress of April 14, 1812. During the Constitutional Convention, Marigny has on two occasions voted against the inclusion of the Florida Parishes in the State of Louisiana.[31]

In a sitting of the Council (of New Orleans) of September 22, Bernard Marigny was elected one of the aldermen of the Fifth District or Ward.[32]

1813. Rosa de Marigny de Mandeville, second child of Bernard Marigny's second marriage born.[33]

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[1] The writer wishes to acknowledge the courtesies extended by the officials of The Howard Memorial Library, The New Orleans Public Library, The Louisiana State Library, The Louisiana State Museum Library and the Cabildo.

[2] Attention is called to the following corrections for Part I, which appeared in the Autumn Number. Page 54, Col. 1, Line 7, "below" should read "above". Page 54, Col. 1, Lines 19-20 "Pontchartrain" should be enclosed in brackets. Page 55, Col. 2, Line 32, after "M. de Mandeville" insert [at Mobile].

[3] *Memoirs of Pierre Clement De Laussat*, photostatic copy of original available at Howard Memorial Library. Original published by M. Vignaniour, Paris (?), 1851. Translation furnished through the courtesy of Stanley Clisby Arthur.

[4] *Ibid.*

[5] Inscription on tomb in St. Louis Cemetery No. 1, New Orleans, states: "Born in New York, Aug. 17, 1739. Died in this city May 11, 1813." Tinker, Edward Laroque, *Les Ecrits de Lanque Francaise en Louisiane au XIX^e* Siecle, 307, says Evan Jones was a native of Philadelphia as also does Arthur, Stanley Clisby and de Kernion, George Campbell Hutchet, *Old Families of Louisiana*. 318. The marriage contract refers to Evan Jones as "*Negotiant demurant en cette ville*" so he was evidently engaged in some commercial enterprise, probably a commission merchant. Martin, Francois-Xavier, *History of Louisiana*, 284. "The increase of the commerce of the United States with New Orleans, induced the appointment of a consul there [this was in 1799] and the President [Adams] commissioned Evan Jones as consul. In 1801, Daniel Clark received an appointment as consul at New Orleans replacing Jones, *ibid.*, 287.

[6] Inscription on tomb in St. Louis Cemetery No. 1, New Orleans, states "Born in Louisiana in 1749, Died in this city in 1821".

[7] Notarial Archives, New Orleans, Peter Pedesclaux, Notary, Book 3333, Act No. 534, May 19, 1804.

[8] *Ibid.*, Art. 3.

[9] *Ibid.*, Art. 4.

[10] *Ibid.*, Art. 5.

[11] Acts of *The Louisiana Territorial Legislature, Session of 1805*, Chapt. 36, Page 352.

[12] Inscription on tomb in St. Louis Cemetery No. 2, New Orleans, Arthur, and de Kernion, *Op. cit.*, 318, says he was born on March 17, 1807, as also does Cruzat, J. W. "Biographical and Genealogical Notes concerning The Family of Philippe de Mandeville Ecuyer Sieur de Marigny 1709-1910," *Publications of The Louisiana Historical Society*, 5, (1911) 42.

[13] *Acts of The Louisiana Territorial Legislature*, 1 Session, 1806-07, Chapt. 27. Marigny was at the time in his 21st year.

[14] Inscription on tomb in St. Louis Cemetery No. 2, New Orleans. Arthur and de Kernion *Op. cit.*, 318: says however that he was born on June 15, 1808, and also that his mother died on June 4, 1808 or 9 days before his birth, thus perpetuating an error also found in Cruzat. *Loc. cit.*, 49. King Grace, *Creole Families of New Orleans*, also says 1808.

[15] St. Louis Cathedral Archives, New Orleans.

[10] *The Courrier of Louisiana*, August 8, 1808, Page 3, Col. 1, gives her obituary.

[17] *The Courrier of Louisiana*, Sept. 9, 1808, Page 3, Col. 1.

[18] She was 19 at this time. The inscription on her tomb in St. Louis Cemetery No. 2, New Orleans, reads as follows "Anna Mathilde Morales *Epouse de Bernard de Marigny Decede le 1er aout 1859, a l'age de 69 ans.*"

[19] After the transfer of Louisiana to France by Spain and the subsequent transfer by France to the United States in 1803, Morales had lingered in Louisiana. His intrigues and land sales made him *persona non grata* to Governor Claiborne, who on Jan. 25, 1806, ordered him to leave the Territory "in the course of the present month." On Feb. 1, Morales departed for Pensacola. Gayarre, Charles, *History of Louisiana*, 3rd Ed. 4, 125-131. *American State Papers, Public Lands*, 4. 501-2.

[20] Notarial Archives, New Orleans, Michel De Armas, Notary, Doc. 117, Mar. 4, 1818.

[21] Notarial Archives, New Orleans, Adolphe Boudousquie, Notary Book 3105, Doc. 50, Mar. 13, 1852.

[22] *The Courrier of Louisiana*, Sept. 22, 1809, Page 3, Col. 1. *Bernard Marigny a ses Concitoyens*, 1, says "In 1810 I was under the Territorial Government elected a member of the Legislature." Though the Legislature did not meet until 1810 the election was in 1809.

[23] *Bernard Marigny a ses Conitoyens*, 2.

[24] *The Courrier of Louisiana*, Aug. 25, 1809, Page 4, Col. 4.

[25] *Ibid.*, April 18, 1808, Page 3, Col. 4.

[26] Arthur, and de Kernion, *Op. cit.*, 319, says he was born in 1811. However, the inscription of the tomb in St. Louis Cemetery No. 1, New Orleans, reads: "*Mandeville de Marigny, Decede Le 3 Juin 1890, a L'age de 80 ans.*" Tinker, *Op. cit.*, 307, also gives 1811 as the date of his birth as does King, *Op cit.*, 58.

[27] *Ibid.*, 1.

[28] *The Courrier of Louisiana*, Feb. 1, 1811, Page 3. Col. 1.

[29] *Ibid.*, May 20, 1811, Page 3, Col. 3.

[30] *The Courrier of Louisiana*, May 25, 1812, Page 3, Col, 1.

[31] Gayarre, *Op. cit.*, 3, 272-3.

[32] *Ibid.*, Sept. 25, 1812, Page 3, Col. 1

[33] Tomb in St. Louis Cemetery No. 2, gives no birth date. The inscription reads: "*morte le 17 Janvier, 1866 a l'age de 53 ans.*"

◆

The Bonnabel Grant

[Continued from Page 48]

the King we approve said survey and in His Royal name grant to Don Antonio Bonabel the said four thousand and twenty arpents of land surface in order that he may enjoy and dispose of same and the usufruct therefrom as his own property, adhering to the said survey and complying with the conditions prescribed by the laws and regulations dealing with this matter.

We issue these presents signed and sealed with our coat of arms and countersigned by the undersigned Honorary Commissioner of War, and Secretary of this Government for His Majesty, in the city of New Orleans, on the twenty-fifth day of January of the year one thousand seven hundred and ninety-nine.

(Signed)
MANUEL GAYOSO DE LEMOS.
By order of His Lordship.

(Signed)
ANDRES LOPEZ ARMESTO.

REGISTERED

I do certify that the above plan and proces-verbal is a true copy of the original grant deposited in my office. New Orleans, March 31, 1814.

(Signed)
LAFON, Surveyor.

■ Gov. Hugh L. White and party, of Mississippi, inspect Louisiana coastal oil operations.

LOUISIANA COASTAL OIL OPERATIONS INSPECTED BY MISSISSIPPI OFFICIALS

Governor Hugh L. White and a party of Mississippi officials recently visited Louisiana oil fields as guests of the Department of Conservation and The Texas Company.

The object of the visit was to familiarize the Mississippi officials with oil operations in coastal waters, particularly the measures employed to prevent pollution. It is understood the leasing of Mississippi Sound waters is contemplated.

Besides Governor White the party consisted of Attorney General G. L. Rice, Land Commissioner Guy McCullum, State Geologist W. C. Morse, Oil and Gas Supervisor Hugh M. Morse, members of the Minerals Lease Commission of Mississippi; State Senator Rush Knox; Mayor Joe Milner of Gulfport; Mayor Louis Braum of Biloxi; Joe Baker of Jackson; and Dr. F. F. Nigh of Houston. The Department of Conservation was represented by W. F. Chisholm, John Foulkes and J. J. Metzger, Jr.

Leaving New Orleans Monday morning, January 9th, the party arrived at The Texas Company's docks at Montegut in Terrebonne Parish, on Bayou Terrebonne about twenty-five miles from Houma. Here two fast boats carried the party to Caillou Island, where dinner was served by The Texas Company.

O. B. Trotter, superintendent of The Texas Company, explained the operations in the Caillou Island field; then the party visited the Lake Barre field. A sea-plane was provided for those members of the party who wished to inspect the fields from the air.

Cleanliness of the operations elicited much favorable comment and the visitors expressed their appreciation of the many courtesies shown by their hosts.

A Survey of the Louisiana Fresh Oyster Industry

By
Geo. H. Seferovich

PART III

EARLY MARKETS

At the close of the nineteenth century the canneries in Mississippi and the New Orleans market comprised the major outlets for the oyster crop of Louisiana. There were two well established markets in New Orleans to which the luggers from the oyster beds sailed. The natural reef oysters were brought to the Old Basin Canal in the rear of the city and were sold as "lake" oysters for canning and cooking. They were sold for between 50 and 60 cents a barrel, depending upon the condition of the market. The market for cultivated oysters was located on the Mississippi River at the old French Market. The inclined landing was known as Picayune Pier or Lugger Bay. The small boats grounded their bows on the landing which accommodated about 250 luggers.

In 1880 about 50,000 barrels or 150,000 bushels were sold at the French Market for from $2.00 to $3.50 a barrel or for about $1.00 or $1.75 a sack. These oysters came from the private beds west of the delta, and were sold to restaurants and hotels for raw consumption.

The industry was dominated at this time by single enterprises. Only a few partnerships existed. In 1897 two corporations were organized, The Gulf and Bayou Cook Oyster Company, Limited, and the Louisiana Fish and Oyster Company. These companies leased large tracts of water bottoms in anticipation of large scale production methods. As a whole, however, the firms were usually operated by former fishermen and planters who, from frugality and a few successful seasons, had acquired enough capital to venture into the marketing field. They often maintained their leases after entering the wholesaling business. At the present time many city dealers maintain beds on a share basis with fishermen. Some partnerships are formed between a fisherman and a shipper.

PRESENT MARKETS

The Old Basin Canal and Picayune Pier Markets no longer exist and other centers have grown to rival the New Orleans market. In New Orleans there are two well established centers to which oysters are shipped from the beds. If the cargo is from the public reefs, the luggers dock at the Press Street wharf on the Mississippi River. If the oysters are cultivated, they are usually taken to the Barracks Street Wharf. The oysters are transported from the beds to the city in power driven luggers. The luggers are either owned by the planters or operated as common carriers.

METHODS OF HANDLING

Unlike the methods employed in Maryland, the oysters are sacked at the point of production and are not shipped loose in the hold of the lugger. The sacks are carried from the hold of the lugger by negroes and stacked on the wharf, from where they are removed to the trucks of wholesalers and then distributed to retailers or shucking houses. Unlike the scenes at the oyster wharves in Maryland, there is neither higgling nor the rush and bustle of buyers and sellers. The selling is very direct. The boats operate on regular schedules and the shipments from different planters arrive at scheduled times during the week. The large wholesalers own oyster sacks with the firm's name stenciled in purple, red, or green ink. The wholesaler places his order with the luggerman by delivering to him the number of sacks which he wishes filled and a requisition for various sizes, **viz.,** selects, extra selects, etc. The luggerman upon returning to the beds delivers the sacks to the proper planter who fills the order and ships it on the next sailing. During the season planters ship about twice a week.

This is the last of a series of selected articles on the Louisiana fresh oyster industry by Mr. Seferovich, whose M.B.A. thesis at L.S.U. College of Commerce furnished the material sources.

Each wholesaler has an assigned portion of the wharf where the sacks bearing his firm's name are stacked in rows three sacks high. Each sack has a tag attached bearing the names of the planter, the lugger, and the consignee; the number of sacks in the order; and the size of the oysters in the sack. The sacks are usually stacked according to the size of the oysters contained in them. The wholesaler trucks them to his shucking plant where he fills orders for both shell and shucked oysters.

NEW ORLEANS DEALERS

The New Orleans oyster dealers are wholesalers and shippers. Out-of-state orders are usually filled for wholesalers, chain stores, restaurants, and hotels. In 1923 there were 24 wholesalers in the city. At the present time there are 14 of which 8 are interstate shippers licensed by the Bureau of Public Health of the Treasury Department. Almost all of the wholesalers operate shucking plants where oysters are removed from the shells. About 90 percent of the sales of the wholesalers are in shucked oysters.

Most of the city wholesalers supply the local trade. Some of the dealers estimated that between 35 and 50 percent of the oysters entering New Orleans are consumed within the city. Between 75 and 90 percent of the sales of a few large wholesalers are consummated outside of the state.

The majority of the dealers use a brand name on the best grade of oysters. The prominent brand names in use by the city dealers are: Banner, P & J, P.K., 4-By-Cook, and French Market. Some have been successful in establishing their brand in interstate markets. Most of the dealers market through distributors who shop on a price basis and do not encourage the establishment of a brand name. If the dealer attempts to sell directly to retailers and thus encourages consumer preference for a brand name, the distributors will refuse to purchase from him and will threaten to serve the retailers at a lower price. Although consumers in some cities prefer to buy a brand name product, (see Part II of this series of articles in the Autumn Issue, page 43, Table III) the distributors refuse to supply the retailers with them because of a smaller margin of profit.

MARKETING SHUCKED OYSTERS

It has already been mentioned that 90 percent of the sales of wholesalers are in shucked oysters, i.e., oysters which have been removed from the shells. Almost all of the wholesalers operate shucking plants, and employ from 7 to 20 shuckers who receive from 20 to 25 cents a gallon. The shucked oysters are sold fresh and uncooked in gallon cans, and shipped packed in ice in either boxes or barrels. No effort is made to pack in small unit containers.

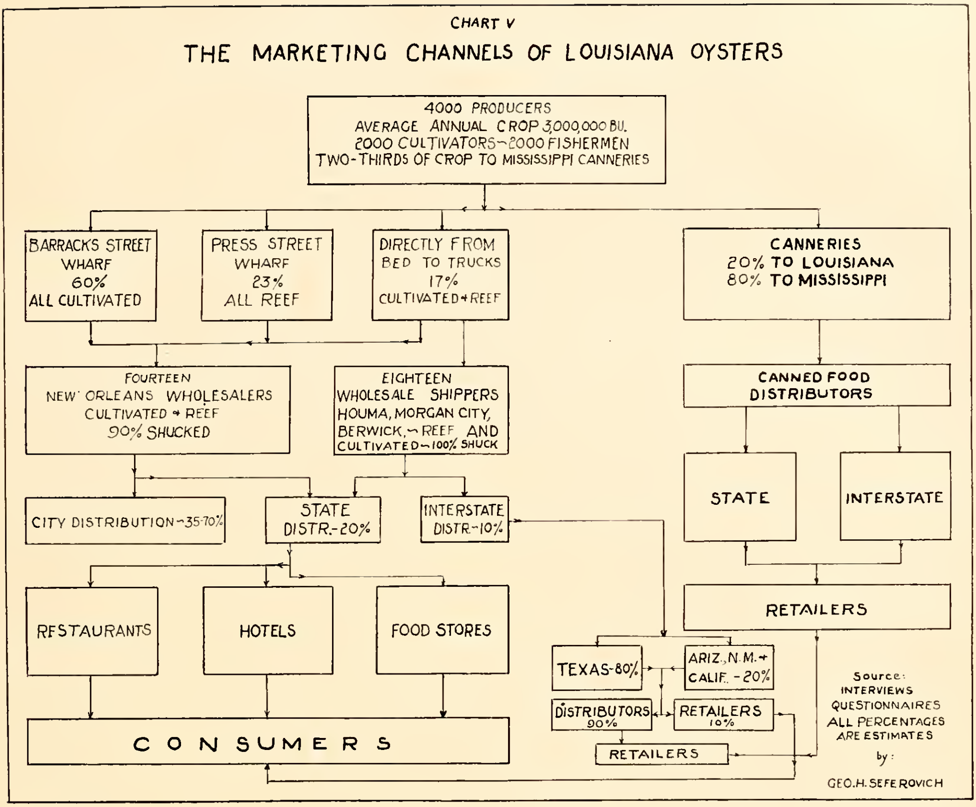

CHART V

THE MARKETING CHANNELS OF LOUISIANA OYSTERS

4000 PRODUCERS
AVERAGE ANNUAL CROP 3,000,000 BU.
2000 CULTIVATORS—2000 FISHERMEN
TWO-THIRDS OF CROP TO MISSISSIPPI CANNERIES
BARRACKS STREET WHARF 60% ALL CULTIVATED
PRESS STREET WHARF 23% ALL REEF
DIRECTLY FROM BED TO TRUCKS 17% CULTIVATED + REEF
CANNERIES 20% TO LOUISIANA 80% TO MISSISSIPPI
FOURTEEN NEW ORLEANS WHOLESALERS CULTIVATED + REEF 90% SHUCKED
EIGHTEEN WHOLESALE SHIPPERS HOUMA, MORGAN CITY, BERWICK,—REEF AND CULTIVATED—100% SHUCK
CANNED FOOD DISTRIBUTORS
STATE
INTERSTATE
CITY DISTRIBUTION—35-70%
STATE DISTR.-20%
INTERSTATE DISTR.—10%
RETAILERS
RESTAURANTS
HOTELS
FOOD STORES
TEXAS-80%
ARIZ., N. M. + CALIF. -20%
DISTRIBUTORS 90%
RETAILERS 10%
RETAILERS
CONSUMERS
Source: INTERVIEWS QUESTIONNAIRES ALL PERCENTAGES ARE ESTIMATES
by: GEO. H. SEFEROVICH

After the oysters arrive at the shucking plant they are removed from the sacks and piled on shucking tables. The shuckers work at benches having a hole through which the empty shells are dropped. The shuckers break the bill of the oyster with a hammer and introduce a sharp, flat bladed knife into the opening, severing the adductor muscle from the valve or shell. The shells open and the hinge ligament is torn. The meats are then placed into a metal bucket. A scoreboard containing the number of each shucker hangs from the wall. When the bucket has been filled a helper places a tally opposite the shucker's number and takes the bucket of meats to the washing room. The meats are spread on a perforated metal frame and subjected to a shower bath. They are then graded and placed in unsealed, flange topped gallon cans, which are placed in a refrigerator to await shipment.

The proprietor obtains orders from retailers, distributors, hotels, and restaurants by means of direct mail advertising or personal salesmanship. Orders are received by telephone, telegraph, and mail.

When the orders arrive, requisitions are sent to the refrigerator room and the orders are filled. Local orders are delivered by the trucks of the wholesalers; interstate orders are collected by the Railway Express Agency or motor freight trucks.

STATE DEALERS

The dealers in Houma, Morgan City, and Berwick are wholesale shippers. There are 18 shippers in cities other than New Orleans; this includes branches operated by the same company in more than one city. Houma, Morgan City, and Berwick are too small to take a large percentage of the sales. About 90 percent of the sales of the firms in these cities are consummated outside of the state. Texas consumes about 70 or 80 percent of the interstate shipments. Other important markets are in Arizona, New Mexico, and California. The markets within the state are for the greater part confined to populous centers such as Shreveport, Baton Rouge, Monroe, Alexandria, Lake Charles, and Opelousas.

The firms in Houma, Morgan City, and Berwick handle cultivated oysters, of which almost all are shipped in the shucked state. Distributors are reached by direct mail advertising, price lists, and letters. All orders except those of a few buyers, who come in their own trucks to the establishments of the shippers, are shipped by express.

The services performed by these dealers are similar to those of the New Orleans wholesalers, but the markets for the products of the firms in the three cities mentioned above are mainly out of the state.

Chart V is a graphic presentation of the marketing channels through which Louisiana's product flows.

* * *

Deer apparently like to haunt the edges of civilization, where they can obtain crops as food and where man has driven away most of their natural enemies. They prefer woods and thickets interspersed with glades—the borderland between the sunny, open spaces and dense cover. Heavy timber offers them less food.

GEOPHYSICAL CREWS AND ACREAGE LEASED — SOUTH LOUISIANA —

(Totals by Months)

MONTH 1938	GEOPHYSICAL CREWS				ACRES LEASED	
	Reflection Seismograph	Torsion Balance	Miscel-laneous	TOTAL	Total Number of Acres Leased	Cost of Leases
JANUARY	51	12	12	75	Not	Available
FEBRUARY	46	12	10	68	500,000	$275,000.00
MARCH	45	12	7	64	402,909	294,000.00
APRIL	45	14	6	65	109,155	170,000.00
MAY	46	9	7	62	103,000	145,000.00
JUNE	44	9	7	60	132,500	105,000.00
JULY	43	11	7	61	55,000	93,000.00
AUGUST	41	10	10	61	121,254	163,000.00
SEPTEMBER	39	5	5	49	103,830	150,000.00
OCTOBER	40	5	5	50	102,000	113,000.00
NOVEMBER	40	6	7	53	100,000	140,000.00
DECEMBER	38	9	7	54	33,000	50,000.00

Oil Development in Louisiana in 1938

[Continued from Page 8]

which prior to 1938 had produced 15,000,000 barrels of oil from shallower sands. Development in this Field was very fast not only by major companies but also by large independent operators, and in a few months oil was found on the boundaries of this structure in the Bodcaw and D Sands. A large number of wells completed in this field are of the gas-distillate type, which have rather high gas-oil ratios. It became apparent to the operators that in order to ultimately obtain the maximum recovery from this field, it was best for the operators to conserve this gas, and immediately a plan was set forth to work out a pressure maintenance program, in which the natural gas that is produced with the oil will be returned to the underground reservoir, thereby maintaining the pressure underground which causes the wells to flow. There is at the present a preliminary pressure maintenance unit being installed at an approximate cost of $20,000.00. If this works out effectively to the satisfaction of the operators concerned, no doubt the entire program will be carried out at a total cost of about $2,500,000.00.

As a result of the discovery of this oil on the flank of the Cotton Valley Field, there have been wells drilled in the Old Shangaloo and Carterville Fields. The former was completed as a gas-distillate well, and the latter up to this time is still testing. However, we can expect many of the old areas such as Pine Island, Haynesville, Homer, Bellevue, and many others to be well tested, and in all probability these old areas, which have already produced many million barrels of oil, can be expected to produce great quantities again.

Another discovery of importance to this section, and particularly to the City of Shreveport, was the new Shreveport Field of Caddo Parish. This discovery was made in July, by the Allison Drilling Company bringing in their No. 1 Ellerbe well in Section 27, T 18N, R 14W. Other new discoveries have been the shallow 3100′ production in the Sligo Field, Bossier Parish, and the new Blue Lake extension to the Zwolle Field of Sabine Parish.

The Rodessa Field of Caddo Parish continued to be the largest individual producer of the entire state, and we might add that with both its Louisiana and Texas production, which is considered as from one field, continued to rank as the third largest oil producing field in the World, surpassed only by the vast East Texas Field and the Oklahoma City pool.

It might be of interest to note the table titled "Geophysical Crews and Acreage Leased South Louisiana", showing the total number of instruments used for prospecting, the total number of acres leased, and the cost of these leases. We would like to point out that geophysical methods of prospecting have been invaluable in adding new discoveries, for not only have they been used to a great extent in South Louisiana in 1938, but they have also been used to a great advantage in the Northern portion of the State. In the middle of 1938, there were an average of 60 crews of all types working in Coastal Louisiana alone.

A most important development during 1938 has been the success of the gravity

[Continued on Page 57]

MONTHLY DRILLING AND PRODUCTION SUMMARY — SOUTH LOUISIANA —

MONTH 1938	New Locations	Drilling Wells	Completed Wells	Total Number of Operations	Number of Producing Wells	Average Daily Prod.
JANUARY	48	324	55	722	1071	173,620
FEBRUARY	39	320	45	641	1084	177,004
MARCH	53	444	57	768	1112	179,775
APRIL	38	378	40	606	1130	180,530
MAY	63	486	54	800	1142	176,762
JUNE	47	403	45	689	1165	179,595
JULY	46	504	41	732	1178	184,560
AUGUST	48	642	51	887	1199	182,418
SEPTEMBER	42	456	49	631	1208	185,530
OCTOBER	55	405	56	662	1222	189,109
NOVEMBER	51	503	66	791	1256	188,021
DECEMBER	37	297	48	467	1287	187,610

Oil and Gas Wells Completed in South Louisiana During 4th Quarter of 1938

Field	Name of Company	Name of Well	Date Completed	Daily Initial Production	Size Choke (Inch)	Gravity	Total
BANCROFT (Beauregard Ph.)	Republic Prod. Co.	Lutcher-Moore #2	11/5/38	486 Bbls.	1/4	46	7,360
	Republic Prod. Co.	Columbia L&T Co. #3	12/5/38	712 Bbls.	1/4	43	7,279
	Geo. E. Lilly	W. K. Rice #1	12/15/38	476 Bbls.	1/4	43	3,338
	Republic Prod. Co.	Columbia L&T Co. #2	12/17/38	313 Bbls.	3/16	42	7,300
	Republic Prod. Co.	Lutcher-Moore #3	12/30/38	336 Bbls.	3/16	42	....
BAY ST. ELAINE (Terrebonne Ph.)	The Texas Co.	State-Bay St. Elaine #18	10/12/38	865 Bbls.	3/16	21	6,834
BAYOU DES ALLEMANDS (Lafourche Ph.)	Amerada Pet. Corp.	Gheens #1	11/2/38	615 Bbls.	1/4	35	7,296
BERWICK (St. Mary Ph.)	The Texas Co.	Wax Bayou Co. #1	12/23/38	28 Bbls.	10/64 & 1 MCF	....	10,650
BIG LAKE (Cameron Ph.)	The Union Sulphur Co.	P. D. Hebert #1	10/28/38	7 Bbls.	13/64	48	8,216
BIRD ISLAND (Plaquemines Ph.)	Gulf Refg. Co.	Grand Prairie Levee Dist. A-2	10/5/38	150 Bbls.	7/32	28	6,148
BLACK BAYOU (Cameron Ph.)	Shell Pet. Corp.	Watkins #21	12/6/38	323 Bbls.	16/64	30	5,625
CAILLOU ISLAND (Terrebonne Ph.)	The Texas Co.	State-Terrebonne #5	11/22/38	503 Bbls.	1/4	42	6,703
CHACAHOULA (Lafourche Ph.)	Sun Oil Co.	Dibert, Stark & Brown #3	12/3/38	633 Bbls.	1/4	32	7,275
CHALKLEY (Cameron Ph.)	Humble Oil & Refg. Co.	Katherine B. Hanszen #2	11/1/38	....	....	....	8,568
CHARENTON (St. Mary Ph.)	Knisely Oils Inc.	W. E. Hertel #2	10/13/38	27 Bbls.	Pumping	19	1,149
	Parrish Drilling Co.	Paul LeBlanc #2	10/14/38	115 Bbls.	1/4	20	1,787
	Fifteen Oil Co.	Dolph Parro #2	11/13/38	321 Bbls.	3/16	33	6,705
	Pan American Prod. Co.	A. Veeder Co. Inc. #10	11/20/38	97 Bbls.	Open Choke	23	2,459
	Pan American Prod. Co.	E. J. Robicbaux #5	11/29/38	356 Bbls.	1/4	23	2,454
	Edmont Oil Co.	Hertel #1	11/30/38	12 Bbls.	12/12	20	1,134
	Harry L. Edwards & Jas. S. Aber (Edmont Oil Co.)	Rene Blanchard #1	12/6/38	60 Bbls.	Open Choke	20	1,786
	Pan American Prod. Co.	Henry Ecurer B-3	12/23/38	240 Bbls.	1/4	24	2,446
CHOCTAW (Iberville Ph.)	Louisiana Crusader Oil Co.	E. B. Schwing #3	10/13/38	405 Bbls.	1/4	37	8,512
	Louisiana Crusader Oil Co.	Schwing #4	12/30/38	389 Bbls.	18/64	39	8,504
CREOLE (Cameron Ph.)	Superior Oil Co.	Gulf of Mexico State #3	12/1/38	388 Bbls.	12/64	34	5,267
DOG LAKE (Terrebonne Ph.)	The Texas Co.	LLECO-DOG LAKE #8	10/10/38	418 Bbls.	1/4	40	6,813
EAST HACKBERRY (Cameron Ph.)	Union Sulphur Co.	Dorion #9	10/13/38	1,220 Bbls.	3/16	30	7,097
	Gulf Refg. Co.	M. P. Erwin A-24	11/12/38	68 Bbls.	1/4	32	3,205
ENGLISH BAYOU (Calcasieu Ph.)	The Union Sulphur Co.	O. H. Castle #9	10/21/38	153 Bbls.	1/4	41	7,147
	Fohs Oil Co.	M. P. Erwin #1	12/2/38	283 Bbls.	10/64	42	7,053
EVANGELINE (Acadia Ph.)	Frio Pet. Corp.	Gulf Fee #2	10/26/38	283 Bbls.	7/32	38	6,953
	The Superior Oil Co.	Jennings-Heywood #8	10/28/38	391 Bbls.	....	39	6,740
	Ladak Oil Co. Inc.	Jules Clement #7	11/16/38	50 Bbls.	....	24	1,737
	Glassell & Glassell	Trushel #6	11/16/38	546 Bbls.	14/64	40	9,132
	Gulf Refg. Co.	Arnaudet #40	12/3/38	490 Bbls.	3/16	29	6,871
	The Superior Oil Co.	Wm. Leckelt #15	12/8/38	384 Bbls.	14/64	38	7,080
	The Superior Oil Co.	Jennings-Heywood #9	12/8/38	386 Bbls.	15/64	39	6,633
	Ladak Oil Co. Inc.	Jules Clement #8	12/20/38	75 Bbls.	....	24	1,844
	Glassell & Glassell	Robt. McFarlan #4	12/27/38	514 Bbls.	14/64	38	7,149
GARDEN ISLAND BAY (Plaquemines Ph.)	The Texas Co.	Garden Island Bay #30	12/12/38	486 Bbls.	3/16	39	6,885
GIBSON (Terrebonne Ph.)	Shell Pet. Corp.	Realty Oprs B-6	12/11/38	440 Bbls.	11/64	38	9,501
GOLDEN MEADOWS (Lafourche Ph.)	The Texas Company	La Terre Co. #1	12/4/38	1,094 Bbls.	3/8	38	11,135
GRAND BAY (Plaquemines Ph.)	Gulf Refg. Co.	La. State "QQ" (Grand Bay) #1	12/21/38	480 Bbls.	7/32	31	7,147
HARANG (Lafourche Ph.)	Pan American Prod. Co.	F. Ducos & Labribat #2	10/19/38	144 Bbls.	1/4	....	3,734
	William Helis	Valentine #4	12/28/38	322 Bbls.	12/64	39	6,722

Field	Name of Company	Name of Well	Date Completed	Daily Initial Production	Size Choke (Inch)	Grav- ity	Total Depth
IBERIA (Iberia Ph.)	The Texas Co.	C. Hebert #2	10/26/38	65 Bbls.	....	25	4,555
	William Helis	Bolivar #6	11/3/38	182 Bbls.	3/16	23	3,442
	The Texas Co.	L. P. Bryant #5	12/3/38	528 Bbls.	1/4	31	6,627
JEANERETTE (St. Mary Ph.)	Herton Oil Co.	Roane Sugars Inc. A-1	10/7/38	440 Bbls.	3/16	39	9,960
JEFFERSON ISLAND (Iberia Ph.)	The Texas Co.	State-Lake Peigneur #1	11/2/38	252 Bbls.	10/64	32	7,840
LAFITTE (Jefferson Ph.)	The Texas Co.	A. Marrero #3	10/4/38	985 Bbls.	3/8	35	10,300
	The Texas Co.	Rigolets Coop. Fur. Co. #10	10/15/38	1,179 Bbls.	3/8	35	10,188
	The Texas Co.	LLE Lafitte #12	11/13/38	1,809 Bbls.	3/8	35	10,147
LAKE BARRE (Terrebonne Ph.)	The Texas Co.	State-Lake Barre #42	10/28/38	10 Bbls. & 6¾ MCF	1/8	....	11,316
LAKE LONG (Lafourche Ph.)	Fohs Oil Company	State-Lake Long #6	12/2/38	388 Bbls.	12/64	37	9,362
LAKE PELTO (Terrebonne Ph.)	The Texas Co.	State-Lake Pelto #21	10/26/38	65 Bbls.	1/8	27	6,280
LAKE VARRET, WEST (St. Martin Ph.)	Shell Petroleum Corp.	Hazel Burdin #1	12/3/38	250 Bbls	16/64	34	8,105
LIRETTE (Terrebonne Ph.)	Humble Oil & Refg. Co.	R. Verret #1	10/17/38	142 Bbls. & 8 MCF	3/8	47	....
NORTH CROWLEY (Acadia Ph.)	Humble Oil & Refg. Co.	J. B. Stakes #1	11/5/38	561 Bbls.	3/16	36	7,198
	Humble Oil & Refg. Co.	Federal Land Bank of New Orleans #4	11/23/38	389 Bbls.	3/16	36	7,198
	Humble Oil & Refg. Co.	Federal Land Bank of New Orleans #5	12/11/38	456 Bbls.	3/16	36	7,198
NORTH TEPETATE (Acadia Ph.)	The Atlantic Refg. Co.	G & R Klump #1	10/9/38	125 Bbls.	1/4	56	7,970
	The Atlantic Refg. Co.	G & R Klump #2	12/12/38	160 Bbls.	5/16	55	8,655
QUARANTINE BAY (Plaquemines Ph.)	Gulf Refining Co.	La. State QQ #4	10/4/38	150 Bbls.	3/16	32	8,150
	Gulf Refining Co.	La. State QQ #6	12/25/38	355 Bbls.	3/16	34	8,182
	Gulf Refining Co.	La. State QQ #7	12/30/38	454 Bbls.	1/4	36	8,182
RACELAND (Lafourche Ph.)	Tide Water Assoc. Oil Co.	South Coast Corp #1	11/14/38	705 Bbls.	1/4	38	10,315
	Amerida Pet. Corp.	South Coast Corp #3	11/19/38	831 Bbls.	1/4	....	10,266
ROANOKE (Jeff. Davis Ph.)	Continental Oil Co.	J. Sturdivant #1	10/13/38	294 Bbls.	3/16	53	12,088
SOUTH HOUMA (Terrebonne Ph.)	Shell Pet. Corp.	Peters #1	11/12/38	492 Bbls.	1/4	37	11,047
SULPHURMINES (Calcasieu Ph.)	Union Sulphur Co.	Fee #864	10/19/38	323 Bbls.	3/8	23	4,635
	The Union Sulphur Co.	Fee #866	11/3/38	561 Bbls.	1/4	24	5,277
TEPETATE (Acadia Ph.)	Continental Oil Co.	Homeseekers A-1	12/3/38	134 Bbls.	5/32	33	9,447
UNIVERSITY (East Baton Rouge Ph.)	William Helis	Duplantier #3	11/24/38	345 Bbls.	3/16	35	6,484
	William Helis	H. B. Nelson #2	12/24/38	356 Bbls.	3/16	35	6,481
	William Helis	Duplantier #4	12/30/38	275 Bbls.	3/16	35	6,481
VENICE (Plaquemines Ph.)	Tide Water Assoc. Oil Co.	Buras Levee Dist. #2	11/12/38	414 Bbls.	1/4	40	3,634
VILLE PLATTE (Evangeline Ph.)	Continental Oil Co.	Fontenot-Ludeau-Tate #1	10/3/38	343 Bbls.	3/16	40	8,989
	Continental Oil Co.	Folanie Tate #2	10/25/38	319 Bbls.	3/16	39	9,080
	Continental Oil Co.	Hattie Haas #2	10/26/38	202 Bbls.	3/16	40	9,045
	Continental Oil Co.	Vidrine-Deville #2	10/31/38	417 Bbls.	3/16	40	9,090
	The Texas Co.	E. B. Norman Fee #1	11/20/38	150 Bbls.	10/64	40	9,124
	Continental Oil Co.	Adam Tate #1	11/27/38	206 Bbls.	3/16	61	9,100
	Continental Oil Co.	Tate-McDaniel #2	12/2/38	288 Bbls.	3/16	40	9,027
	Continental Oil Co.	Philip Fontenot #1	12/9/38	1,023 Bbls.	1/4	39	9,097
	Continental Oil Co.	Ludeau-Haas #2	12/9/38	1,122 Bbls.	1/4	41	9,046
WEST HACKBERRY (Cameron Ph.)	Gulf Refg. Co.	C. O. Noble Fee A-1	10/1/38	273 Bbls.	1/4	20	3,254
	Stanolind Oil & Gas Co.	Carter & Sweeney #12	10/13/38	1/4 MCF	1/4	. . .	3,076
	Superior Oil Co.	Doris Kaough C-1	10/15/38	289 Bbls.	10/64	38	7,058
	Superior Oil Co.	Benson Vincent #4	11/24/38	259 Bbls.	5/32	38	6,668
	Stanolind Oil & Gas Co.	Kaough #2	11/30/38	40 Bbls.	....	24	3,040
WOODLAWN (Jeff. Davis Ph.)	The Union Sulphur Co.	Rocca #1	12/13/38	256 Bbls.	15/64	44	8,911

* MCF—Million Cubic Feet of Gas—the open flow capacity of a gas or distillate well.

Oil and Gas Wells Completed in North Louisiana During 4th Quarter of 1938

Field	Name of Company	Name of Well	Date Completed	Daily Initial Production	Size Choke (Inch)	Grav-ity	Total Depth
BULL BAYOU (De Soto Ph.)	Paul L. Miller	Jal Drlg. Co. #1	11/9/38	20 MCF	....	....	4,206
COTTON VALLEY (Webster Ph.)	H. I. Morgan	Hope A-2	10/4/38	535 Bbls.	7/16	71	8,195
	North American Oil Consld.	E. L. Stewart #3	10/7/38	160 Bbls.	3/8		5,912
	Union Producing Co.	E. L. Stewart #2	10/8/38	129 Bbls.	3/8	71	5,981
	Hunt Oil Co.	Pardee Co. #1	10/12/38	127 Bbls.	13/64	71	8,765
	Hunt Oil Co.	Hope #20	10/29/38	280 Bbls.	1/4	71	8,474
	Magnolia Pet. Co.	Merritt Unit #1	11/4/38	577 Bbls.	1/2	72	8,491
	Hunt Oil Co.	Hope #22	11/13/38	205 Bbls.	18/64		5,900
	Midstates Oil Corp.	Welorie Unit #1	11/17/38	292 Bbls.	5/32	45	8,705
	Ohio Oil Co.	Warren Cox 2-#1	11/20/38	351 Bbls.	3/8	61	8,518
	Hunt Oil Co.	Babb #9	12/2/38	414 Bbls.	1/4	71	5,950
	Hunt Oil Co.	Davis #2	12/6/38	224 Bbls. & 3 MCF	1/4	71	8,707
	Stanolind Oil & Gas Co.	Webster Inv. Co. #1	12/16/38	432 Bbls. & 5 MCF	7/16	....	8,316
	Ohio Oil Co.	Bodcaw Lbr. Co. #51	12/16/38	190 Bbls. & 3¼ MCF	1	71	8,619
	Hunt Oil Co.	Davis #10	12/17/38	420 Bbls. & 5½ MCF	21/64	71	8,392
	Hunt Oil Co.	Babb #10	12/18/38	744 Bbls.	22/64	49	5,960
	Stanolind Oil & Gas Co.	Coffee #1	12/23/38	1,752 Bbls.	....	41	8,631
DRISCOLL (Bienville Ph.)	Arkansas-Louisiana Gas Co.	Davis Lbr. Co. B-1	12/6/38	22½ MCF	....	....	7,201
MONROE (Ouachita, Union and Morehouse Phs.)	Hope Producing Co.	Cole Heirs #13	10/4/38	1¼ MCF	....	....	2,174
	Southern Carbon Co.	Grayling #29	10/12/38	1¾ MCF	....	....	2,209
	Union Producing Co.	Fee 68 #2	10/24/38	6¾ MCF	....	....	2,175
	Union Producing Co.	Union School Board #2	10/24/38	9 MCF	....	....	2,154
	Southern Carbon Co.	Grayling #31	10/26/38	3½ MCF	....	....	2,258
	Hope Producing Co.	Cole Heirs #14	11/14/38	1¾ MCF	....	....	2,169
	Southern Carbon Co.	Grayling #30	11/18/38	3½ MCF	....	....	2,193
	Southern Carbon Co.	Grayling #32	11/22/38	15 MCF	....	....	2,142
	Interstate Nat'l Gas Co.	Fee Min. #88	11/25/38	20¾ MCF	....	....	2,189
	United Carbon Co.	Rabun #2	11/28/38	1½ MCF	....	....	2,229
	Union Producing Co.	State of La. #2	11/29/38	12 MCF	....	....	2,157
	Union Producing Co.	State of La. #1	11/29/38	10¼ MCF	....	....	2,143
	Southern Carbon Co.	Fee #71	12/7/38	8 MCF	....	....	2,177
	Interstate Nat'l Gas Co.	Fee Min. #89	12/9/38	21 MCF	....	....	2,182
SHREVEPORT (Caddo Ph.)	R. E. Allison	Ellerbe #2	10/3/38	561 Bbls.	1/4	46	5,569
	R. E. Allison Drlg. Co.	La. State #1	10/19/38	81 Bbls. & 3½ MCF	5/16	60	5,615
	R. L. Bauman	Slattery Succ'n #1	11/7/38	240 Bbls.	23/64		5,596
	Rodessa Oil Refg. Co.	Chandler #1	11/23/38	792 Bbls.	3/8	44	5,590
	R. E. Allison Drlg. Co.	Ellerbe #4	12/28/38	384 Bbls.	1/8	47	5,570
	Harry Hanbury	Lowe #1	12/28/38	720 Bbls.	1	44	5,556
	R. E. Allison Drlg. Co.	Ellerbe #5	12/29/38	6 MCF	....	..	5,575
SLIGO (Bossier Ph.)	H. M. Harrell	Edwards Estate Unit #1	12/10/38	60 MCF	....	....	5,200

* MCF—Million Cubic Feet of Gas—the open flow capacity of a gas or distillate well.

Healthy Streams

[Continued from Page 6]

mum and white water re-circulated and substituted wherever possible. In short, the system should be closed to the finest degree. Application of these methods will require careful study and development in the mill, as adjustments will have to be made in the manufacturing process to compensate for paper making materials formerly wasted, but to be returned to the system under improved methods.

To make the program well balanced the Industrial Research Laboratory should carry on experimental work in reclaiming chemicals and converting the waste organic material into valuable by-products. Experience has shown that in reality the two problems, (1) waste, and (2) stream pollution, are one. By increasing the recovery and use of waste products, stream pollution will eventually be a closed subject.

Considering the many ramifications of this problem, very little can be accomplished if we continue as we have in the past. The health, vitality and usefulness of our streams remain of paramount importance. There is a grave need for some organization of existing facilities to ensure the solution of definite technical problems, within a reasonable time.

* * *

Oil Development in Louisiana in 1938

[Continued from Page 54]

meter. The Gulf Refining Company has had excellent results with this instrument in Southeast Louisiana. The first indications this Company had of Grand Bay and Quarantine Bay Fields in Plaquemines Parish, also the Timbalier Bay Field in Lower Lafourche Parish, were the result of their work with the gravity meter. Of course, in each of the above areas they checked this information with the reflection seismograph. It is interesting to note that the torsion balance is not being used as much in the lower Coastal Parishes as it had been in previous years, but is used more extensively in the "Conroe Trend" section of Southwest Louisiana and in the Florida Parishes. Another interesting development may be noted that in a few areas where it was difficult to work by the reflection method of shooting, the companies resorted to the old refraction method, especially in open waters of Breton and Chandeleur Sounds off the east coast of Plaquemines and St. Bernard Parishes; also in Atchafalya Bay, off the coast of St. Mary and Terrebonne Parishes.

During 1938 the State of Louisiana through the State Minerals Board, leased 162,948 acres of State owned lands, throughout the entire State, for a cash consideration of $704,782.48 plus various royalty interests. These leases were the first ones granted since the early part of 1936.

At the close of the year 1938 Louisiana continued to maintain its rank as the fourth largest oil producing State in the United States. Its daily production averaged 260,014 barrels, of which 193,239 barrels were produced from the Gulf Coast of Louisiana, and 66,775 barrels from North Louisiana.

EDITORIAL

CONSERVATION AND CO-OPERATION

Ruskin said: "God has given us the earth for our life. It is a great entail. It belongs as much to those who come after us as it does to us, and we have no right, by anything we do or neglect to do, to involve them in unnecessary penalties or to deprive them of benefits which are theirs by right."

This seems to clarify the objectives of conservation. There can be no difference of opinion as to those objectives, but there may be a difference of opinion as to the methods and procedure to attain them. Here is where we must enlist the service of that hand-maiden of conservation, scientific research; and as we employ this service more effectively we begin to enjoy the fruits of conservation.

In this issue of the Conservation Review there are a number of articles that indicate the progress which is being made in the scientific solution of some of our most perplexing problems. For example, the Department's research laboratory has been conducting studies and experimental work on the possible treatment of paper mill waste let loose in our streams.

It is suggested in this connection that the manufacturers might work with this Department to advantage as a cooperative group. Scientific research may furnish the plan for a solution of the problem, but in the final analysis the successful execution of the plan will depend on the co-operation of the affected interests, which will only come through an enlightened public opinion.

* * *

"SIC TRANSIT GLORIA!"

Who writes the captions that accompany the photographic studies by Delcroix entitled "Lovely Louisiana"?

Since the Autumn issue of the Conservation Review, in which these pictures appeared, numerous inquiries have been received as to the author of the descriptive lines.

One of the suspects was J. B. Dauenhauer, Jr., director of the Department's fisheries division.

The former sheriff of Jefferson Parish disclaimed any connection whatsoever with the work.

"Sounds too much like poetry," said Sheriff Dauenhauer. "When I was a small boy I was advised that all poets starved to death, sooner or later; so I've never taken a chance."

The blame was finally fixed on the Department's publicity director, Will Branan, who apologized for the temporary aberration and said that he might behave better in the future.

* * *

THANKS!

The Editor of the Conservation Review is appreciative of the many kind letters received in recent months, testifying to the high character of the magazine. The following from Harold W. Browning, professor of botany and director of graduate studies at the Rhode Island State College, is typical of these commendations:

The Conservation Review is furnished free on request to citizens of Louisiana, to public schools, libraries and scientific institutions in the United States and foreign countries. Of this issue 27,000 copies are distributed.

"The recent arrival of the Autumn, 1938, number of the Louisiana Conservation Review prompts me to write and thank you for sending it to us regularly. Also, I wish to congratulate you upon the excellence of your publication. We find much of interest and genuine value in each issue. Furthermore, we have watched with interest the constant improvement of your Review over a period of years and to its present high degree of perfection. It is really the finest publication of its kind that has ever come to our attention. We are glad of this opportunity to tell you about it and to express our appreciation of being retained on your mailing list."

* * *

EARLY HISTORY OF CONSERVATION SHOWN IN INTERIOR MUSEUM

Among the many impressive displays in the Museum of the United States Department of the Interior, housed in a wing of its new building, is the series of exhibits featuring the work of the National Park Service in the furtherance of conservation—both of wildlife and its natural environment—and our prehistoric ruins and historic landmarks.

By the use of dioramas, maps and explanatory texts, the origin of the National Park Service ideal, and its concrete expression as manifested today in more than 140 areas, are graphically portrayed. Diminutive figures, costumed appropriately to the period and place, mutely enact the episodes characteristic of the National park featured. Morristown National Park, New Jersey, becomes a vital link in the War of the American Revolution, through the life-like representation of General Washington greeting the youthful Marquis de Lafayette at the entrance to his headquarters, the Ford Mansion. Summer recreations and winter sports made available in our national parks are illustrated by realistically posed figures engaged in outdoor amusements typical of the parks. Wall maps indicate the locations of these wilderness wonderlands and historic shrines, all the way from Fort Jefferson National Monument, Florida, off the southeastern tip of the United States, to Mount McKinley National Park, in distant Alaska, far to the Northwest.

Vol. VII WINTER, 1938-39 No. 4

Published Quarterly
by the
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New Orleans

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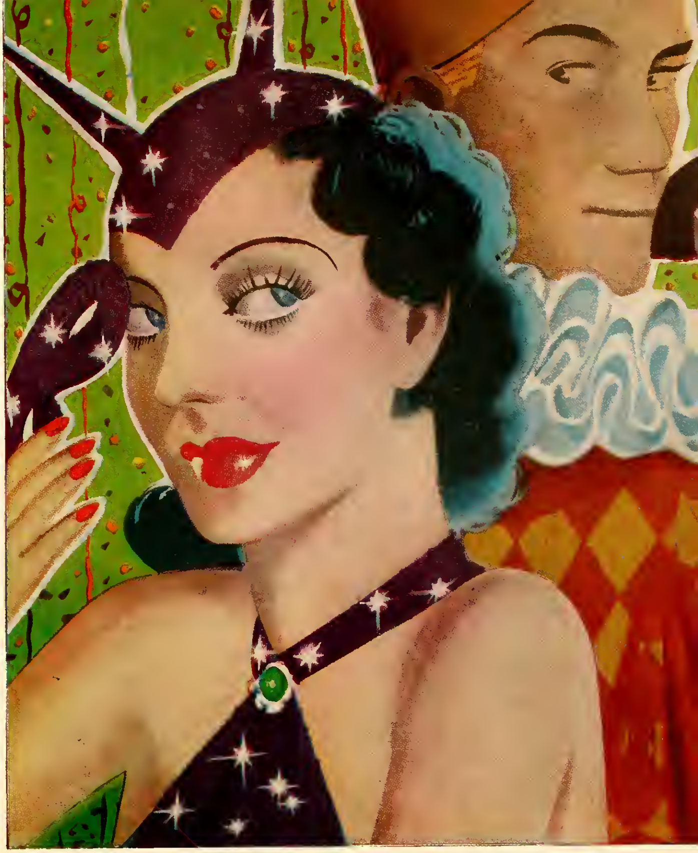

Courtesy, Louisiana Tourist Burea

MISTER! It's a date . . . .

Meet me bright and early Tuesday morning, February 21st, at the corner of Canal and St. Charles . . . .

Mardi Gras! That grand and glorious day of masking and merrymaking . . . .

Culmination of our New Orleans Carnival, the world's most successful organization of parades and balls, fun and frolic . . . .

Let's do the town—and be sure to stop in at the Conservation Museum, 239 Royal, where we will see that exhibit of Louisiana's wonderful wildlife and natural resources . . . .

Don't keep me waiting!

THE NEW ORLEANS CARNIVAL

Glamorous Institution of Merry-Making

FEBRUARY 16-21, 1939

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